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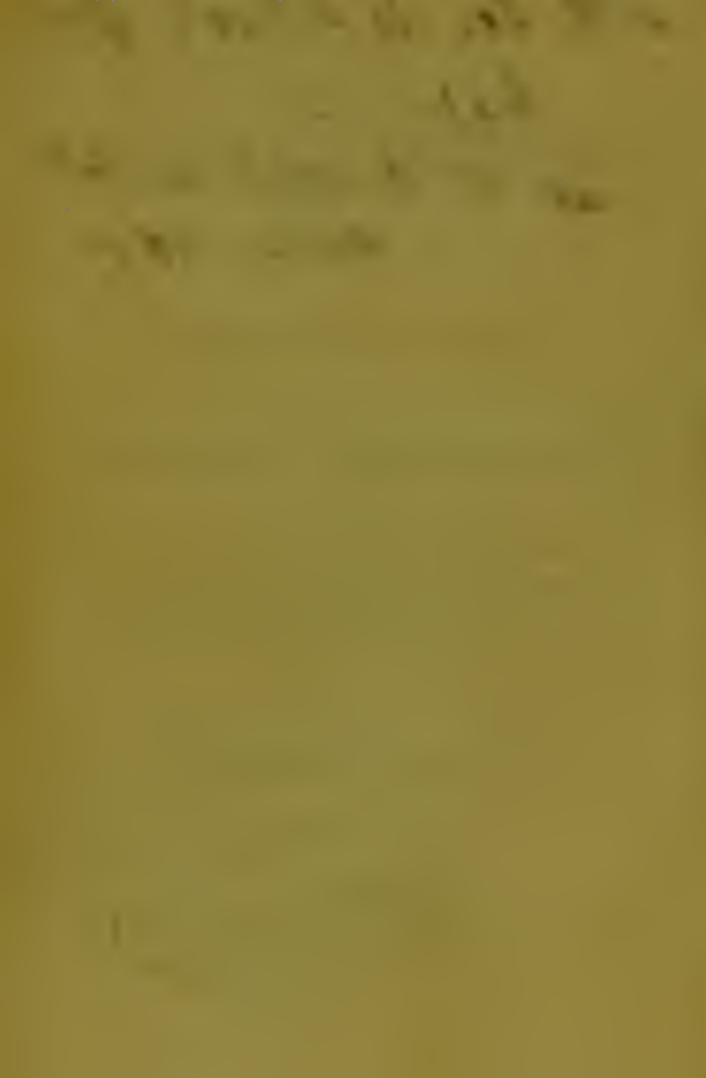
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THE PRESCRIBER'S ANALYSIS
OF THE
BRITISH PHARMACOPŒIA.





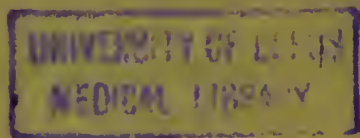
THE
PRESCRIBER'S ANALYSIS
OF THE
BRITISH PHARMACOPŒIA.

BY
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COMPLETE MATERIA MEDICA.'

THIRD EDITION.

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PREFACE TO THE THIRD EDITION.

THE substance of the Second Edition remains unaltered, with the exception of a few verbal amendments, and a slight alteration in the order of the articles, which is shown by the Table of Contents. The short period which has elapsed since the publication of the Second Edition has not brought any new remedy of striking interest before the profession ; but the recent introduction of Cinchona into India, and its successful cultivation there and in other of our tropical possessions, has imparted such a fresh interest to the subject that an article upon it has been added, embracing the chief features of interest in its natural history, and inquiring at some length into the medicinal effects of Cinchonine and Cinchonidine, though they are not contained in the British Pharmacopœia. Some other substances have also appeared to deserve notice, and a description has been added. These are chiefly the Hypophosphites, the solution of Sulphuret of Lime as a substitute for the compound Sul-

phur Ointment, and the *Physalis Alkekengi*, a fashionable remedy for gout. A new section has also been added, for the use of students, on the practical rules to be observed in writing a prescription, and containing a brief abstract of Paris's valuable instructions on this subject. Some of the *Pharmacopœia* processes for volumetric analysis which have proved puzzling to students have also been explained at such length as their importance appeared to deserve; whilst the increased intercourse with France, and the frequent occurrence of French weights and measures in the medical and scientific literature of the day, has given them such additional importance, that an article has also been added explanatory of their most important features.

LIVERPOOL, *September*, 1865.

PREFACE TO THE SECOND EDITION.

THE early call for a Second Edition of the 'Prescriber's Analysis of the British Pharmacopœia' is an encouragement to hope that the plan and contents of the first have been found practically useful to the Prescriber. The contents of the First Edition are therefore retained unaltered. As, however, several comparatively new medicines and preparations have been introduced into the British Pharmacopœia, and others have been prominently before the profession which have not been made officinal, I have prepared a detailed account both of the officinal ones, and of such of the others as appeared to deserve it.

In the present Edition the strength and principal ingredients of the different preparations are briefly indicated, in addition to the changes previously described. The prescriber will therefore now see, not only whether the new preparations are stronger or weaker, etc., than the old ones with which he is

familiar ; but he can refresh his memory as to their actual strength, whether they are altered or unchanged.

In accordance with a wish frequently expressed, I have also added a Table of the Doses and Incompatibles of all the substances contained in the New Pharmacopœia, as well as of those which are in common use, though not officinal. This Table contains also the Pharmacopœial strength of the preparations, *e.g.* Acid. Sulph. Dil., nearly 1 part in 13 ; Confect. Piperis, gr. vi of Blk. Pepper in \mathfrak{z} i ; Infus. Calumbæ, oz. ss in fl. oz. x ; Tr. Cinchon. Flavæ, oz. i in Oi of Proof Spt.

These additions have been so extensive that the 'Analysis' is more than doubled in its size and contents. A full index has been also added, for convenience of reference.

J. B. N.

LIVERPOOL, *May*, 1864.

THE
PRESCRIBER'S ANALYSIS
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GENERAL INTRODUCTORY REMARKS.

THE differences between the new Pharmacopœia and the old ones are so great, as to render a careful study of them necessary on the part of prescribers, in order to prevent mistakes, which it will be very difficult to avoid for some time to come ; and the object of the present analysis is to enable the prescriber, at a glance, to see whether any change has been made in the formulæ that he has been accustomed to use, and if so, what is its nature and extent. In many cases no mistake can arise from the differences that have been introduced, because the names are changed as well as the forms ; but in some instances the old name has been retained, whilst the strength or nature of the medicine has been materially altered. In such a case it will be almost impossible to avoid mistake except

by adopting the very simple precaution of adding the letters Ph. Br. or Ph. L., etc., to the preparation ordered. For example, Tincture of Aconite is retained as the name for a preparation, which is only about one-quarter the strength of the Dublin Tinct. Aconiti, and only about one-third the strength of the London Tinct. Aconiti. The dispensing druggist will therefore be unable to decide which of the three forms is intended, for many persons will continue from habit to prescribe the forms to which they have been accustomed ; and the dispenser will have to run the risk of using too weak a preparation, because it is now the authoritative one, and he will prefer to be on the safe side in case of doubt ; or he will employ the old forms on the supposition that they have been meant, and so incur the hazard of giving an overdose of a dangerous medicine.

The instances, however, in which this precaution will be necessary, are not numerous ; and the list at page 25 contains all in which an important deviation has been made from the strength of the old familiar formulæ, without such an accompanying change of name as will at once draw attention to the alteration.

General Outline of Changes in the British Pharmacopœia classified.

Several of the changes in the new Pharmacopœia require individual description, but many of them may be classified together in the following manner:—

Every *Sulphuretum* of the old Pharmacopœia has been changed into *Sulphuratum* or *Sulphurata*. Thus, *Antimonii Sulphuretum Aureum*, Ph. E., has *Antimonium Sulphuratum*, and *Potassii Sulphuretum* is now *Potassa Sulphurata*.

Chlorinata is changed into *Chlorata*. So *Liquor Sodæ Chlorinatæ* is now *Liquor Sodæ Chloratæ*.

Chlorineum has become *Chlorum*, and *Aqua Chlorinei* is now *Liquor Chlori*; and *Iodinium* has subsided into *Iodum*, so that *Tinctura Iodinii Comp.* has become *Tinctura Iodii*.

The substances called *Tartarizatum* are now called *Tartaratum*; so *Antimonium Tartarizatum* is *Antimonium Tartaratum*; and the compound name *Potassio-tartras* has been discontinued in favour of *Tartaratum*; so that *Ferri Potassio-tartras* is now *Ferrum Tartaratum*.

The preparations are not generally called "Comp." unless there are two or more important ingredients present. This general rule however has many exceptions, *e.g.* *Inf. Gent. Co.* retains its "Co." for the

sake of its Orange-peel and Coriander, whilst Inf. Senæ has lost its "Co.," though it contains Ginger, which is probably as important as they are. Tinct. Cardam. Co. retains its "Co." for its Caraway, Raisins, Cinnamon, and Cochineal; while Tinct. Iodi is without a "Co.," though it contains Iodide of Potassium in addition to Iodine.

The vegetable alkaloids are all made to end in IA, whilst neutral vegetable principles are made to end in UM. So *Aconitina* is now *Aconitia*, that it may correspond with *Morphia*, and *Strychnia*, etc., whilst *Santonica* furnishes *Santoninum*, a neutral substance, and *Digitalis* supplies *Digitalinum*.

Names ending in AS are now made feminine instead of neuter: *Ferri Sulphas Granulatum*, Ph. D., is now *Ferri Sulphas Granulata*.

The *Acids* (diluted) are altered in their proportions so as to make them correspond very nearly in neutralizing power, in order that the doses may be alike. Some are therefore strengthened, and others weakened, in order that the dose of each may be mxx or mxxx.

The *Cerates* are all omitted or changed into ointments.

The *Distilled Waters* are all, except two, to be distilled, and to contain no spirit. They are not to be made henceforth from the volatile oil, by trituration with magnesia, etc.

The *Essences* of the Ph. D. are all omitted by name, but several of them are retained under the name of *Spirits*.

The *Infusions* vary exceedingly in the proportions of ingredients ordered, and the length of time they are

to infuse. As a general rule, the length of time has been very much shortened, and cold water is frequently ordered instead of hot. By this change the starch frequently present will not be dissolved, and the infusion will keep much better, *e.g.* Inf. Calumbæ. In some cases also the infusion will be more aromatic, as the cold water will dissolve, but not dissipate the fragrant volatile oil of Orange Peel and the like, as in Inf. Gent. Co. The Infusions are decidedly improved.

Strength of the Different Infusions.

Oz. ii in f $\bar{3}$ xx Inf. Casearillæ, Dulcamaræ.

Oz. i in f $\bar{3}$ xx Inf. Anthem., Aurant., Buceo, Calumb., Cinchon. Flav., Cuspariæ, Krameriæ, Lupuli, Matieæ, Senegæ, Sennæ, Uvæ-Ursi.

Oz. ss in f $\bar{3}$ xx Inf. Caryophyl., Chirataë, Ergot., Gent. Co., Rhei, Rosæ Acid., Serpentariæ, Valerianæ.

Various. Inf. Catechu, $\bar{5}v$, $\bar{3}i$ in f $\bar{3}$ xx; Inf. Cusso, oz. $\frac{1}{4}$ in f $\bar{3}iv$; Inf. Digit., $\bar{3}i$ in f $\bar{3}$ xx; Inf. Lini, $\bar{5}v$, $\bar{3}i$ in f $\bar{3}$ xx; Inf. Quassiæ, $\bar{3}ii$ in f $\bar{3}$ xx.

Dose fl. oz. i of each, except Inf. Cusso: dose of which is fl. oz. viii, or more; *i. e.* twice or more than the whole quantity ordered in the Pharm. Inf. Digitalis: dose, f $\bar{5}ii$ to fl. oz. ss. And Inf. Lini: dose, *ad libitum*.

Liquores. The Liquores, or Solutions of the new Pharmacopœia, appear as if an attempt had been made to construct them, in the main, upon the formula of gr. iv in fl. oz. i, though the exceptions are more numerous than the Solutions which follow the rule, if it really has been intended as a rule at all.

Rule.	{	Liquor	Arsenicalis, Gr. iv in f̄i.
		"	Atropiæ. Gr. iv in f̄i.
		"	Morphiæ Hydrochloratis. Gr. iv in f̄i.
		"	Potassæ Permanganatis. Gr. iv in f̄i.
		"	Sodæ Arseniatis. Gr. iv in f̄i.
		"	Strychniæ. Gr. iv in f̄i.
Exceptions.	{	"	Ammon. Acetatis. ʒii in f̄i.
		"	Antimonii Terechloridi. Not intended for internal use. Nearly oz. ss of the Terechloride in f̄i.
		"	Calcis. About gr. ss in f̄i.
		"	Calcis Saccharatus. Gr. vii in f̄i.
		"	Calcis Chloratæ. About gr. i in ʒx.
		"	Sodæ Chloratæ. About gr. i in ʒiv.
		"	Chlori. A nearly saturated Solution of Chlorine Gas in Water.
		"	Ferri Perchloridi. A nearly, but not quite, saturated Solution.
		"	Ferri Pernitratis. About gr. viii in f̄i.
		"	Hydrargyri Nitratis Acidus. Nearly oz. i of Nitrate of Mercury in f̄i of the Solution. Each drop therefore practically represents gr. i of Nitrate of Mercury.
		"	Plumbi Subacetatis. Nearly gr. i in ʒiii.
		"	Plumbi Subacetatis. Dilut. f̄i in f̄x.
		"	Potassæ. Very nearly ʒss of Potash in f̄i.
		"	Sodæ. Very nearly gr. xv of Soda in f̄i.
Syrupus	{	Ferri Iodidi.	Gr. i in ʒxii, or ʒii in f̄i.
		Ferri Phosphatis.	Gr. i in f̄i or gr. vii. in f̄i.
Vinum	{	Antimoniale.	Gr. ii of Antim. Tart. in f̄i.
		Ferri.	Gr. viii of Tartrate of Iron in f̄i.

The *Lozenges* of the Ph. E. are nearly all omitted ; but the class of medicines is still retained, and there are about half-a-dozen *Lozenges* in the Ph. Br.

Solution of Corrosive Sublimate. The compilers of the *Pharmacopœia* may object to the introduction of this *Solution* amongst the *Liquores*, as they have not themselves placed it amongst them, but have put it into the *Appendix* amongst the "*Solutions*" which are intended only for purposes of analysis, and not for medicinal employment. It appears desirable however to notice it in this place, because "*Liquor*" means "*Solution*," and the *Pharmacopœia* itself employs these two words in the body of the work (pp. 267 to 281) as if they were meant to be used indiscriminately. "*Solution of Corrosive Sublimate*" is also introduced into the *Index* without any comment ; and it may easily therefore be supposed to be meant as a substitute for *Liquor Hydrargyri Bichloridi*, which used to be present in the Ph. Lond. This "*Liquor*" has, however, been omitted from the new *Pharmacopœia* ; but, as above mentioned, a "*Solution of Corrosive Sublimate*" has been introduced—for analytical purposes, it is true, not for medicinal employment. Now this "*Solution*" is forty times as strong as the old "*Liquor*," and fatal consequences would ensue if it should be used by mistake, instead of the old London *Liq. Hydrarg. Bichlor.*

Solution of Carbonate of Ammonia has also been introduced into the *Appendix* for analytical purposes, whilst the *Liquor Ammon. Sesquicarb.* of the Ph. L. has been omitted ; but the new "*Solution*" is only a quarter of the strength of the old "*Liquor*." See above, *Solution of Corrosive Sublimate*.

Solutions. The *Solutions* of the Ph. Br. are not

intended to be understood as belonging to the same class as the Liquores. The Liquores are all intended for medicinal employment, and are placed in the body of the work. The Solutions, on the contrary, are none of them intended for medicinal use, and they are all placed in the Appendix, which is described as containing "articles to be employed in the preparation of medicines," or else "in chemical analysis." See Solution of Corrosive Sublimate, above.

The *Spirits*. Some of these are increased in strength from 30- to above 140-fold.

Suppositories. This class of medicines is introduced for the first time into the Pharmacopœia. A mixture in equal proportions of Cocoa-butter and Lard is often the best vehicle for making this form of medicine.

The *Tinctures*, as a general rule, are made by percolation. Many of them vary considerably from their former strengths. As a general rule, the narcotic tinctures or solutions are reduced in strength rather than increased. An attempt has been made by the compilers of the Pharmacopœia to produce such a degree of uniformity as shall cause the average dose of dangerous tinctures to range from $\mathfrak{m}\mathfrak{xv}$ to $\mathfrak{m}\mathfrak{xxv}$; whilst the average dose of tinctures of less importance will be from $\mathfrak{f}\mathfrak{z}\mathfrak{i}$ to $\mathfrak{f}\mathfrak{z}\mathfrak{ii}$. (Preface to Br. Ph.). Amongst the important *exceptions* to this rule must be noted;

Tinctura Aconiti: dose, $\mathfrak{m}\mathfrak{v}$ to $\mathfrak{m}\mathfrak{x}$, seldom $\mathfrak{m}\mathfrak{xv}$.

— Iodi: $\mathfrak{m}\mathfrak{x}$ to $\mathfrak{m}\mathfrak{xx}$.

— Opii: dose as formerly, according to the object in view.

The *Unguenta*. The Ointments of the Alkaloids are now all made of a uniform strength, viz. one grain of the Alkaloid to sixty grains of Lard.

Weights and Measures.

The alteration in the system of weights will probably be perfectly unimportant in prescribing, for as the grain is unchanged, any known multiple of it will still be unchanged also ; and although the scruple and drachm are now no longer used by authority, they will doubtless continue to be employed in prescribing ; for \mathfrak{z} i will still remain a convenient and well-known symbol for twenty grains, as \mathfrak{z} i will also be an equally unmistakable one for sixty grains. No mistake can possibly arise from continuing to employ them. It is only when the symbol \mathfrak{z} i is used that confusion may result ; but since it is chiefly purgatives and tonics that are ordered in such quantities as ounces, the nature of the medicinal agent prescribed renders a small variation of dose, either in excess or deficiency, of little practical consequence ; and the error, at the worst, only amounts to about one-twelfth of the dose prescribed. The Pharmacopœia directs the symbol oz. instead of \mathfrak{z} to be used to indicate the ounce ; and it is desirable that it should be employed, as it will entirely obviate the chance of mistake between it and the drachm \mathfrak{z} . The Avoirdupois pound now used differs, it is true, very widely from the Troy pound hitherto employed ; but as physicians never prescribe pounds of a remedy in their prescriptions, the change in this weight will not affect them as prescribers ; and the alteration in the weights employed has been taken

into account in constructing the Pharmacopœia, so that the result does not vary from the old one in consequence of the change of weight.

The *Measures* remain unchanged in the Ph. Br., but the symbols for the fluid ounce and drachm are altered :—

1 gallon	..... C	= 8 pints.....	Oviii
1 pint	..... O	= 20 fl. ounces ...	fl. oz. xx
1 fluid ounce	... fl. oz.	= 8 fl. drachms ...	fl. dr. viii.
1 fluid drachm.	... fl. dr.	= 60 minims	min. lx.
1 minim	... .. min.	= 1 minim	min. i.

The *Weights* are changed by the adoption of Avoirdupois weight instead of Troy weight, which alters the weight of the pound and ounce :—

<i>Troy—Old.</i>		<i>Avoirdupois—Present.</i>	
1 lb. = 12 oz.	= 5760 grs.	1 lb. = 16 oz.	= 7000 grs.
1 oz. =	..... 480 grs.	1 oz. =	..... 437·5 grs.
1 grain =	..... 1 gr.	1 grain	..... 1 gr.

The French *gramme* is coming so much into use that it is convenient to know its relation to the grain, and the source from which it is derived. Our own grain was originally taken from the weight of a dry ripe grain of wheat selected from the middle of the ear; and in the reign of Henry III. an Act of Parliament was passed declaring that 32 such grains should be called a pennyweight; 20 such pennyweights an ounce; and 12 such ounces a pound. In the reign of Henry VII. a set of the most accurate weights on this scale was deposited in the Tower; and in 1758 a standard pound weight was made in brass for Government. In the reign of George IV. an Act was passed which declared that the 5760th part of this pound

should be the only grain used ; and that 7000 such grains should form a pound avoirdupois : and this is the law at present. It has been ascertained by very careful experiments that a cubic inch of distilled water at 62° F. weighs 252.458 grains ; and if the above standard weight should be destroyed, it is to be restored by means of weights obtained from distilled water in this proportion. From the above account it will be seen that our English grain weight came into existence originally from a very indefinite and variable source ; but the French Government determined that the standard of French weights should have a more definite and philosophical origin. After a series of most laborious and accurate observations, carried on for many years by their highest mathematicians, they ascertained the length of a line which would pass from the Equator to the Pole ; and they fixed that the ten-millionth part of this line should be the standard of measure, or *metre* of length in France. Now this portion is equal to 39.371 of our inches, or little more than a yard ; and it is called the *metre*, from which all other French measures are derived by multiplying or dividing it by tens, hundreds, etc. In order next to obtain a standard of weight, the hundredth part of this measure, or a *centimetre*, is taken, which measures 0.393 inch, or rather more than a third of an inch. A cube of this size filled with distilled water at 32° F. (not 62° F. as with us) is the French standard of weight, and is called the *gramme*. It weighs 15.444 grains English ; and for ordinary rough mental calculations in reading French medical works it is convenient, and sufficiently accurate, to reckon it as a quarter of a drachm ; which is much more easily remembered than fifteen grains, and a number of decimals.

The other French weights are obtained by multiplying or dividing the gramme by 10, 100, 1000, etc., and the Latin numbers *decem*, *centum*, *mille*, are employed to indicate the diminishing values $\frac{1}{10}$ th, $\frac{1}{100}$ th, $\frac{1}{1000}$ th, or the descending scale; whilst the Greek numbers *deca*, *hecton*, *chilioi* (spelt by the French *kil*-), *murioi*, indicate the ascending numbers 10, 100, 1000, 10,000 grammes. Hence we obtain *decigramme* (Latin), the $\frac{1}{10}$ th of a gramme; *decagramme* (Greek), or 10 grammes; *centigramme* (Latin), $\frac{1}{100}$ th of a gramme; *hectogramme* (Greek), 100 grammes.*

The abbreviated symbol for gramme is grm., which may easily be mistaken for gr., our own contraction for grain, but must be very carefully distinguished.

The French standard of measures, as well as of weights, is obtained from the metre, in the following manner:—The tenth part of the metre, or a *decimetre*, is taken as the standard to be made into a cube, which is called a "*litre*," and this is the standard of measure for liquids, and for wheat, etc. It is a cube of nearly four inches, and contains a trifle more than an English quart. The other measures are obtained by multiplying or dividing by 10, 100, etc., as already described; and the Greek and Latin numbers are employed with the same meanings as those previously mentioned.

The following tables show the relation between French and English weights and measures:—

* The following mnemonic may assist in recollecting the distinction between the value of the Greek and Latin numbers in the French weights and measures, GLAD = G, L, A, D. G, Greek; L, Latin; A, ascending or increasing values; D, descending or diminishing values.

WEIGHTS.

<i>French.</i>	<i>English.</i>	
$\frac{1}{1000}$ grm. Milli-gramme.....	0.015 grain	= $\frac{1}{70}$ gr. nearly.
$\frac{1}{100}$ grm. ...Centi-gramme	0.154	" = $\frac{1}{6}$ gr. nearly.
$\frac{1}{10}$ grm. ...Deci-gramme.....	1.544	" = $1\frac{1}{2}$ gr. nearly.
$\frac{1}{10}$ Grm. ....GRAMME	15.444	" = 15 gr. nearly.
10 grm. ...Deca-gramme	154.440	" = $3\frac{3}{4}$ z. nearly.
100 grm. ...Hecato-gramme ...	1544.400	" = $3\frac{1}{2}$ oz. nearly.
1000 grm. Kilo-gramme.....	15444.000	" = $2\frac{1}{4}$ lb. nearly.
10,000 grm. Myrio-gramme	154440.000	" = 22 lb. or 2 stones nearly.

MEASURES OF CAPACITY.*

<i>French.</i>	<i>Cube of.</i>	<i>Cubic in.</i>
$\frac{1}{1000}$ litre Milli-litre ...= 20 minims nearly	or $\frac{1}{3}$ in. nearly	= .061
$\frac{1}{100}$ litre Centi-litre ...= $\frac{1}{2}$ fl. oz.	" $\frac{1}{4}$ " "	= .610
$\frac{1}{10}$ litre ...Deci-litre ...= $4\frac{1}{4}$ fl. oz.	" $1\frac{3}{4}$ " "	= 6.103
$\frac{1}{10}$ litre ...LITRE	= 2 pts. 2 oz. "	= 61.028
1 litre	or about 1 qt.	
10 litres...Deca-litre ...= $2\frac{1}{4}$ gallons nearly	$8\frac{1}{2}$ " "	= 610.280
100 litres Hecato-litre = $26\frac{1}{2}$ " "	$1\frac{1}{2}$ foot "	= 6102.800
1000 lit. Kilo-litre ...= 1 tun	1 yard "	= 61028.000
10,000 lit. Myrio-litre = $10\frac{1}{4}$ tuns	$2\frac{1}{4}$ yds. "	= 610280.000

MEASURES OF LENGTH.

<i>French.</i>	<i>English.</i>	<i>Eng. in.</i>
$\frac{1}{1000}$ met. ...Milli-metre	$\frac{1}{8}$ inch nearly	= 0.039
$\frac{1}{100}$ " ...Centi-metre	$\frac{1}{4}$ " "	= 0.394
$\frac{1}{10}$ " ...Deci-metre	$\frac{1}{4}$ " "	= 3.937
$\frac{1}{10}$ " ...METRE	1 yd. 3.37 inches	= 39.371
10 " ...Deca-metre	11 yards nearly	= 393.710
100 " ...Hecato-metre	110 " "	= 3937.100
1000 " ...Kilo-metre	$\frac{2}{3}$ mile "	= 39371.000
10,000 " ...Myrio-metre.....	2 leagues "	= 393710.000

* In this and the following tables the English dimensions are only approximations, but they very nearly represent the truth; and a far more important and useful idea of a litre is obtained in reading a French work on medicine, by knowing that it is *about* a quart, than from the more strictly exact measure of 61.028 cubic inches; and of a centilitre, by remembering that it is *about* a tablespoonful or half a fluid ounce, than by knowing that it is exactly 3 drachms and 23 minims.

Short Summary of the Approximate Values of French Weights and Measures in frequent use. (To be committed to memory.)

GRAMME = 15 grs. or $\frac{1}{4}$ drachm nearly.

Centigramme = $\frac{1}{6}$ gr. nearly.

Hecatogramme = $\frac{1}{4}$ lb. nearly.

LITRE = 1 quart nearly.

Decilitre = a small teacupful nearly.

Centilitre = 1 tablespoonful nearly.

Millilitre = $\frac{1}{2}$ teaspoonful nearly.

Kilolitre = 1 cubic yard nearly, or about as much as would fill an ordinary hot-bath.

METRE = $39\frac{1}{2}$ inches nearly, or rather more than a yard.

Centimetre = $\frac{1}{2}$ inch nearly.

Important Alterations in Strength or Composition of Preparations which still retain their Old Names.

Acidum Hydrocyanicum Dilutum contains 2 per cent. of real acid. It is, therefore, the same strength as that of the Ph. L., and a London prescriber will not alter his dose; but it is only about two-thirds the strength of the Edinburgh acid, and an Edinburgh prescriber must order at least half as much again as he has been accustomed to do. The strength of the Dublin acid varied from 1·7 to 2·5 per cent.; and no rule can be laid down.

Decoctum Scoparii contains no Juniper or Dandelion, both of which were contained in the Ph. L.; and it has no Bitartrate of Potash, which was ordered by the Ph. Ed.

Extractum Colchici, and

— *Colchici Aceticum*, nearly twice as strong as formerly, owing to the separation of the starch, previous to the evaporation of the juice.

Infusum Aurantii now contains neither Lemon-peel nor Cloves, which completely changes its flavour, and alters its appearance when combined with Salts of Iron, with which it now forms merely a dark colour instead of a red one, as formerly.

Infusum Calumbæ is nearly twice the strength of the Ph. L. and E.

— Cuspariæ is half as strong again as the old form.

— Digitalis contains no Spirit of Cinnamon as in the L. and E. forms; and is only half the strength ordered by the Ph. E. and D.

— Quassia is three times the strength of the Ph. L., and twice the strength of the Ph. E.

Linimentum Cantharidis is now intended to act as a blistering liquid, and has no substantial resemblance whatever to the Lin. Canth., Ph. D.

— Crotonis contains Olive Oil instead of Oil of Turpentine. It is therefore less irritating, and is much more safe for the attendant, whose face sometimes becomes inflamed from the irritant vapour arising from the Lin. Crotonis of the Ph. D.

— Opii is twice the strength of the Ph. L., but only the same strength as that of the Ph. D.

— Terebinthinæ is entirely different from that of the Ph. L., and differs widely from that of the Ph. E. It is now nearly half-and-half Oil of Turpentine and Resin Ointment.

Liquor Ammonia Acetatis is now about five times as strong as Ph. L., and about six times as strong as D. and E.

— Morphia Hydrochloratis is nearly identical with D. and E.; but only half the strength of Ph. L. It now contains gr. iv in fl. oz. i.

Solution of Carbonate of Ammonia is only a quarter of the strength of the Liquor Ammon. Sesquicarb., Ph. L. See p. 17.

— of Corrosive Sublimate is forty (40) times as

strong as the *Liquor Hydrargyri Bichloridi* of the Ph. L. See p. 17.

Spiritus Juniperi now contains ninety-five times as much Oil of Juniper as the old *Sp. Junip. Co.*, Ph. L.; ten minims now contain one minim of the oil; and the dose will be proportioned to the quantity of oil intended by the prescriber.

— *Menthæ Piperitæ* contains forty-seven times as much Oil of Mint as it did formerly. Ten minims contain one minim of oil.

— *Myristicæ* is now about one hundred and forty times as strong as the old L. and E. Spirit of Nutmeg. Ten minims contain one minim of Oil of Nutmeg.

— *Rosmarini* contains thirty-one times its previous quantity of oil. Ten minims contain one minim of oil.

Tinctura Aconiti is now only one-third the strength of the Ph. L., one-fourth that of the Ph. D., and less than one-fifth that of Fleming's tincture.

— *Belladonnæ* is about half the strength of the L. and D. Tincture.

— *Conii Fructus* is nominally the same strength as *Tinct. Conii* formerly, but it is now made from the Fruit instead of the Leaves, and is probably about half as strong again as before.

— *Digitalis* is one-fourth stronger than the Ph. L.

— *Nucis Vomice* is only about one-third as strong as formerly (really two-fifths as strong).

— *Opii* is one-twelfth weaker than formerly, *i.e.* gr. iii in fl. oz. i, in consequence of the change in the weight of the ounce; but in addition to this, it is

slightly diluted after being made, by the addition of simple spirit to make the tincture fill up a specified measure. This will not make much difference in prescribing, but it should be borne in mind.

Tinctura Rhei is essentially different in flavour from the *Tinct. Rhei*, Ph. E.

Vinum Opii now contains no spices. It is therefore very different in its effects as a stimulant opiate, from the old London *Vin. Opii*.

There are numerous other changes of strength and constituents in other preparations; but they are less important than the above, and will be mentioned in the detailed list of changes further on in this Analysis.

ADDITIONS.

The following List contains the Substances and Preparations that have been Added in the British Pharmacopœia, which were not contained in either the London, Dublin, or Edinburgh Pharmacopœia, with their Doses and Properties.

Acidum Nitro-Hydrochloricum Dilutum. 5 parts of this dilute acid contain nearly 1 part of the strong mixed acids. Dose, mxx to mxxx .

— Sulphurosum. A watery solution, for external use. Use fl. oz. i in an eight-ounce lotion.

Aconitia, and an ointment, gr. i in ʒi . Gr. xxx of the ointment to be used externally.

Ammoniæ Benzoas. Used in catarrhal affections of the bronchial and renal mucous membranes, and in phosphatic conditions of the urine. Dose, gr. xv to ʒii .

— Phosphas. Chiefly used in gout and rheumatism. Dose, gr. xv to ʒii .

Antimonii Terechloridi Liquor. Introduced for preparing Oxide of Antimony. Used in making Pulvis Antimonialis. Also caustic.

Argenti Oxidum. Not previously in Ph. L., though contained in the Ph. D. Dose, gr. ss. I have generally been disappointed in its effects.

Arnica root. For making the tincture. Dose, mxxx .

Bela. Name for Bacl. Astringent in diarrhœa and dysentery. Furnishes a fluid extract. Dose, fl. oz. ss to fl. oz. i.

Bebeern Bark. Introduced for obtaining Beberix Sulphas.

Beberix Sulphas. Tonic; substitute for Quinine. Dose, gr. i to gr. iii.

Belladonna root. For making a liniment.

Bone Black; Ivory Black. A form of animal charcoal. Very useful in poultices for sloughing sores.

Bromine. For yielding Bromide of Potassium. Collodium.

Condy's Disinfecting Liquid. By the name of Liquor Potassæ Permanganatis.

Cusso. A new name for Kousso. Dose, oz. ss to oz. i.

Digitalinum. The active principle of Digitalis. Dose, gr. $\frac{1}{100}$ to gr. $\frac{1}{50}$.

Extractum Belæ Liquidum. 1 oz. in f ʒi. Dose, fl. oz. ss to fl. oz. i.

— Calumbæ. Dose, gr. v to gr. xx.

— Cinchonæ Flavæ Liquidum. A teaspoonful of the fluid extract contains nominally half an ounce of Bark. Dose, mxxv.

— Colocynth. Comp. Scarcely differs from the Pil. Coloc. Co., Ph. L.

— Ergotæ Liquidum. f ʒi contains ʒi of Ergot. Dose, mxxx to f ʒi.

— Filicis Liquidum. The Pharmacopœial name for Oil of Male Fern. Dose, f ʒss to f ʒii after a fast of six hours.

— Opii Liquidum. 1 ounce of watery extract of Opium in a pint of very weak spirit. It is nominally two-thirds the strength of Tinct. Opii, but as extract of Opium is used instead of crude Opium,

it is very nearly the same strength. Dose, same as that of Laudanum.

Extractum Pareiræ Liquidum. 1 ounce of the extract contains an ounce of Pareira root. Dose, f ʒi.

Fel Bovinum Purificatum. This is not simply oxgall evaporated, but it is the gall purified by spirit and then evaporated. Dose, gr. ii.

Ferri Arsenias. For chronic cutaneous scaly diseases; a green powder, insoluble in water. Not often used.

Dose, gr. $\frac{1}{24}$ to gr. $\frac{1}{6}$.

— et Quiniæ Citras. 6 grains contain 1 grain of Quinine. Dose accordingly.

— Perchloridi Liquor. Only introduced for making a tincture.

— Phosphas. Tonic. A slate-blue powder, insoluble in water. Dose, gr. iii to gr. vi.

— Phosphas, Syrup of. Phosphate of Iron dissolved by excess of Phosphoric Acid, gr. i in f ʒi. Dose, f ʒi to f ʒii.

Fusel Oil, by the name of Fousel Oil. Introduced for the purpose of making Valerianate of Soda.

Hyposulphite of Soda. Dose, if used internally, gr. x to gr. xv; for external use, ʒi in fl. oz. i.

Infusion of Cusso or Kousso. One quarter oz. in fl. oz. iv. This dose is much below the one usually given.

— Dulcamara. As a substitute for the Decoction.

— Uva-Ursi. A substitute for Decoet. Uvæ-Ursi.

Kamela. Anthelmintic powder. Dose, ʒi to ʒiii.

Kousso. Introduced under the name of Cusso. Dose, oz. ss to oz. i.

Linimentum Aeoniti. An alcoholic solution of Aconite root and Camphor. fl. oz. i contains 1 ounce of Aconite root, and about a scruple of Camphor. It is about 8 times as strong as the

Tinet. Aconiti of the new Pharmacopœia. As this liniment contains neither oil nor soap, it cannot be employed by means of friction, but must be applied by a camel's-hair pencil, unless it is mixed with Opodeldoc, Glycerine, or some other saponaceous liquid. Externally, \mathfrak{mxxx} .

Liniment. Belladonnæ. An alcoholic solution of Belladonna root and Camphor: the same proportions as Lin. Aconiti above. See remarks above on Lin. Aconiti. Externally, \mathfrak{mxxx} , or more.

— Chloroformi. Half-and-half Chloroform and Camphor Liniment; very stimulating, and sometimes excoriates a tender skin. Externally, \mathfrak{mxxx} to $\mathfrak{f\ssii}$.

— Iodi. A new name for a liniment of Iodine. It contains 10 times as much Iodine, and 4 times as much Iodide of Potassium as the old Tinet. Iodini Comp. of the Ph. L., and is therefore a powerful counter-irritant. Use externally, as much as may be requisite for painting the part affected. It generally causes most acute pain for 10 or 15 minutes, and frequently blisters.

— Terebinthinæ Aceticum. Contains Oil of Turpentine, strong Acetic Acid, and Camphor Liniment, of each equal parts. See Formulæ, p. 183.

Liquor Atropiæ. 4 grains to an ounce of *very weak* spirit. For dilating the pupil, $\mathfrak{gtt. i}$ is placed in the eye; not intended for internal employment.

— Calcis Saccharatus. 1 ounce contains about 7 grains of lime, and is therefore about 12 times as strong as limewater. Dose, \mathfrak{mxxv} to $\mathfrak{f\ssii}$, in a tea-cupful of milk.

— Ferri Perchloridi. Introduced for the purpose of making a tincture.

- Liquor Potassæ Permanganatis. An officinal form of Condry's Fluid, but twice its strength.
- Sodæ Arseniatis. 4 grains of Arseniate of Soda to the ounce. The same strength as the old Liq. Potass. Arsenitis of the Ph. L. Dose, $\mathfrak{m}\mathfrak{v}$, to be increased carefully, or not at all.
- Strychniæ. The same strength as Liq. Atropiæ, gr. iv in fl. oz. i; but it contains a few drops of H Cl to dissolve the Strychnia. Dose gtt. iv (gr. $\frac{1}{30}$) to gtt. viii (gr. $\frac{1}{15}$), twice a day.
- Lithiæ Carbonas. Used in gout. Gr. iii to gr. vi.
- Citras. Used in gout. Gr. v to gr. xv.
- Oil of Coriander.
- Oil of Male Fern. Introduced under the name of Extractum Filicis Liquidum. Dose $\mathfrak{m}\mathfrak{xxx}$ to f $\mathfrak{z}\mathfrak{ii}$ after a six hours' fast.
- Permanganate of Potash. Only used to make the solution.
- Pil. Aloes Barbadosensis. Barbadoes Aloes flavoured with Oil of Caraway.
- Pilula Ferri Iodidi. Nearly one-third the mass is Iodide of Iron. Dose, gr. iv.
- Podophylli Resina, bilious purgative. The officinal name for Podophyllin. Dose, gr. $\frac{1}{6}$ to gr. ss or gr. i.
- Podophyllum. The root. Only used for preparing the resin.
- Potassæ Citras. Dose, gr. xx to $\mathfrak{z}\mathfrak{i}$ or more.
- Permanganas. Not prescribed internally in the solid form.
- Potassii Bromidum. Dose, gr. iii to gr. vi; sometimes gr. x or gr. xxx. Of doubtful efficacy in these large doses.
- Pyroxylin. The Pharmæopœial name for Gun Cotton, for making Collodium.

Santoninum. Anthelmintic, for *round* worms only.

Dose gr. ii every other night for 3 doses; or gr. i three times a day for two or three days.

Scammonii Radix. Introduced for yielding Resin of Scammony.

Sodæ Arsenias. For dry cutaneous diseases; should only be used in solution. Dose of the liquor, $\text{m}\nu$.

Spiritus Cajuputi. 1 part of Oil of Cajuput in 10.

Dose, $\text{m}\times$ to mxxx .

— Chloroformi. About half the strength that the unofficinal Chloric Ether is generally supposed to be. Dose, mxv to mxxx . A larger dose is unpalatable.

Suceus Conii. A fluid form of Extract of Conium, obtained by pressing the fresh Hemlock, and adding to the juice a third of its bulk of spirit.

Dose, mxxx to mxl . See Note below.

— Scoparii. A similar preparation to the above. Dose, mxxx to f 5i. See Note below.

— Taraxaci. Similar preparation to the above. Dose, mxxx to f 5i or f 5ii. See Note below.

Suppositoria Acidi Tannici. Each suppository weighs nearly 14 grains, and contains 2 grains of Tannin.

— Morphiae. Each suppository weighs nearly 8 grains, and contains $\frac{1}{4}$ grain of Muriate of Morphia.

Note.—The proportion between the expressed juice, and the extract obtained from it by evaporation, varies with the season, the soil, and other circumstances. The doses here given are from averages obtained by Mr. H. S. Evans, Mr. Ransom, Mr. Squire, and Mr. Stocker.

Syrupus Aurantii Floris. Syrup flavoured with orange-flower water. A very agreeable syrup.

— Ferri Phosphatis. Gr. i in f ʒi. Dose, f ʒi to f ʒii.

Scillæ. About half the strength of Oxy-mel Scillæ. Dose, f ʒi.

Tinctura Arnicæ (Radicis). Dose, mxxx.

— Conii Fructus. Made from the fruit, and not the leaves as heretofore. More uniform and increased in its strength. Dose, mxxx.

— Sabinæ. Dose, mxxx.

— Senegæ. Dose, mxxx to f ʒi.

Trochisci Acidi Tannici. Each lozenge contains $\frac{1}{2}$ grain of Tannic Acid.

— Bismuthi. Each lozenge contains 2 grains of Nitrate of Bismuth.

— Catechu. Each lozenge contains rather more than a grain of Catechu.

Unguentum Aconitiæ. Gr. i Aconitia to ʒi. Use ʒss at a time.

— Atropiæ. Gr. i Atropia to ʒi. Use ʒss at a time.

— Veratriæ. Gr. i Veratria to ʒi. Use ʒss to ʒi at a time. See Formulæ.

— Calomelanos. Gr. x Calomel to ʒi.

— Terebinthinæ. Resin ointment, made thin and stimulating by Oil of Turpentine. It closely resembles the dressing in common use in the colliery districts of the North and in Yorkshire, for the treatment of burns,—a treatment which is admired by every one who has had the opportunity of fairly testing it.

Medicines in modern use, which have not been introduced into the British Pharmacopœia.

Acid, Carbolic, the modern name for a variety of Creasote
 — Chromic
Aetæa racemosa
 Aniline or its preparations
Bismuthi Carbonas
 — et *Ammonia Citras*
 — Liquor
 Bromide of Ammonium
 Calabar Bean
 Cerium or its compounds
 Chlorodyne
 Cinchonine or its salts
Cotyledon Umbilicus
Fucus vesiculosus
 Granulated forms of medicine
 Hyponitrites of Potash or Soda
 Hydrocotyle, syrup of

Hypophosphites of Lime, Soda, etc.
 Iron, effervescing forms of
 —, Pyrophosphate
 Larch, tincture of
Liquor Calcis Sulphuratæ
 Lithia, acrated water
 Magnesia, effervescing Citrate
 —, soluble forms of Carbonate
 Manganese, Carbonate
 Pepsin or Pepsin Wine
 Peroxide of Hydrogen
Physalis Alkekengi
 Quinidine or its salts
Sarracenia purpurea
 Sunbul or its preparations
 Triticum repens
 Veratrum viride

Note.—Most of the medicines mentioned in this page are described in the following article, at such

length as their importance appeared to deserve. They are distinguished from the officinal substances contained under the head of "Additions" by a star, and by the words "not officinal in Ph. Br." No account is here given of *Cotyledon Umbilicus*, or the *Hyponitrites*, *Manganese*, or *Sarracenia purpurea*, because their claims to notice appear very small, or they have failed to realize the expectations entertained of them.

Detailed account of the New Substances and Preparations introduced into the British Pharmacopœia; and also an account of several Medicines in modern use which are not contained in the Ph. Br.

Note.—The substances which are not officinal are distinguished by a star, and the words “not officinal in the Ph. Br.”

ACIDUM NITRO-HYDROCHLORICUM DILUTUM—AQUA REGIA DILUTA.

Take of Nitric Acid fl. oz. ii.

Hydrochloric Acid fl. oz. iv.

Distilled Water fl. oz. xxvi.

Add to the water first the Nitric and then the Hydrochloric Acid.

Medicinal Properties.—This Acid has long been thought to act specially upon the liver, and to promote its action. It has also been thought to assist materially in the passage of gall-stones. The fact at any rate is, that the pain from gall-stones is often much and quickly relieved by the employment of this acid, which is used sometimes internally and sometimes in the form of a bath. It often causes a tingling sensation of the skin, increased peristaltic action of the bowels, and a copious flow of saliva.

Dose, mxx to mxxx, when taken internally. For making a bath, from five to ten ounces should be added to each gallon of water, and the patient should use it for twenty or thirty minutes. A metallie or painted bath should not be employed.

ACIDUM SULPHUROSUM—SULPHUROUS ACID.

Take of Sulphuric Acid fl. oz. iv.

Wood Charcoal, coarsely powdered, oz. i.

Water fl. oz. xxii.

Put the Charecoal and Sulphuric Acid into a glass flask, and heat them by a gas-lamp. Pass the evolved gas through a small wash-bottle containing fl. oz. ii of water, and afterwards to the bottom of a pint bottle containing the remainder of the water, which must be kept cold. Continue the distillation until the bubbles appear to escape from the large bottle as fast as they do from the wash-bottle. Keep the product in a stoppered bottle in a cool place. It contains twenty times its volume of Sulphurous Acid.

Explanation.—When Sulphuric Acid, SO_3 , is boiled with Charecoal, or with Copper or Mereury, it is decomposed, and loses 1 eq. of its Oxygen, which combines with the substance employed, whilst Sulphurous Acid, SO_2 , escapes in the form of gas. This is to be passed at first through a wash-bottle, which will retain any Sulphuric Acid that may spirt over during the distillation, as well as a little Sulphurous Acid; but the greater part of this gas will pass through and be condensed by the water in the large bottle if it is kept cold. The solution is colourless, and has an acid taste, and the disagreeable odour of burning Sulphur.

Medicinal Employment.—Sulphurous Acid is a deadly poison to almost all animal and vegetable

growths, and has long been used by housewives on account of this property. It is a common direction in receipt books to burn a sulphur-match inside a jar immediately before it is filled with preserves, in order to prevent them from becoming mouldy. When mould has once occurred in a cupboard, it is extremely difficult to prevent it from attacking anything like paste or preserves which may be placed in it hereafter, for the air of the cupboard becomes filled with the minute spores of the low vegetable body which constitutes mould. As soon, therefore, as a substance favourable to their growth is placed there, the spores begin to germinate, and a fresh crop of mould is the result. The Sulphurous Acid kills the spores which happen to be in the air within the jar, and if it is immediately filled with preserve, and covered with spirit and bladder, etc., the access of fresh spores is prevented, and the preserves are kept till they are eaten. Now some forms of disease in the human subject are attributed to the existence of low forms of vegetable life, and it is for the purpose of destroying them that Sulphurous Acid dissolved in water has been introduced into the Pharmacopœia. There is an extremely obstinate kind of vomiting which is associated with the presence in the stomach of vegetable growth, called *Sarcina Ventriculi*; and Sulphurous Acid sufficiently diluted with water has been administered with benefit in some of these cases. The thick, soft, pulpy scabs of *Porrigo* are also dependent upon a low vegetable body which grows round the roots of the hair, and is nourished by dirty or unhealthy secretions from the head; and these obstinate eruptions have sometimes been cured by the application of Sulphurous Acid as a lotion, when other things have failed. Sulphurous Acid is formed when Sulphur is

burnt in the air, and under the name of Sulphur Baths this acid has long been used with success for the cure of various skin diseases.

Dose, for internal use, $\mathfrak{m}\text{ xv}$ may be taken in fl. oz. i of water, but it is seldom employed internally; for a lotion, add fl. oz. ii to fl. oz. vi of cold water; or for a bath, fl. oz. xvi may be added to a bathful of tepid water.

**ACTÆA RACEMOSA*, or *Cimicifuga racemosa*, (not officinal in the Ph. Br.) has been introduced from America as a drug possessing extraordinary powers in the treatment of *Acute Rheumatism*. In this country it has not sustained its reputation, which is perhaps owing to a most important mistake in the dose on its first introduction here. The tincture which was prepared by one of the most eminent wholesale houses, and which became to a great extent the standard of the others, was issued with a label describing the dose as 40 drops, which is little more than half a fluid drachm. The formula also which was published for making the tincture ordered one ounce of *Aetæa* root to a pint of spirit; whilst the American tincture contained 4 ounces of root to a pint. The American dose of this strong tincture is described by Wood and Bache as being from $\mathfrak{f}\text{ ʒi}$ to fl. oz. ss instead of barely $\mathfrak{f}\text{ ʒss}$. The American tincture itself was therefore four times as strong, and the quantity of this strong preparation was from two to eight times as great as ours; making the real American dose in some cases above thirty times as great as the popular English one. It is not surprising therefore that the drug has not fulfilled the expectations which were at first entertained of it. It cannot be considered to have had a fair trial in this country. In *Chorea* it is highly esteemed in America, and Dr. Wood adds the weight of his own decided approbation. In *Phthisis* and other pulmonary

affections, it often lessens the secretions and other distressing symptoms.

Description of Plant.—The *Actæa* itself is an elegant flowering plant, about six feet high, with leaves resembling those of the Monkshood and Larkspur. It terminates in a beautiful feathery raceme of small white flowers, and belongs to the Natural Order of Ranunculaceæ. The root very much resembles Black Hellebore root in general appearance, being a rough, twisted, knobby mass, about half an inch thick, with short, slender, straightish root-fibres, almost black externally, but whitish internally. It has a decided and peculiar odour when fresh, and a bitter subacid taste. The presence of this odour is an important criterion of the medicinal activity of the root, which ought to be used as nearly fresh as possible.

Dose and Administration.—The powder and the tincture of *Actæa* are the best forms. In Chorea the dose is from 10 grains of the powdered root every two hours to a teaspoonful three times a day. Of the tincture (made from 4 ounces of the root to a pint of spirit) the dose is from fʒi to fl. oz. ss three times a day; or from fʒss to fʒi every two hours. If vomiting or dizziness is occasioned the dose must be diminished, or the medicine suspended for a time; but it does not generally produce any sensible evacuation, or effects of this kind.

AMMONIÆ BENZOAS.—This is in shining, nearly colourless scales and crystals, having a slight and agreeable odour of Benzoic Acid. It is soluble in water, and is not disagreeable to the palate. It is used in Catarrhal affections of the bronchial mucous membrane, and in chronic inflammation of the renal mucous membrane with a phosphatic condition of the urine. It has also been used in Jaundice, with good

effect, in removing the yellow colour from the skin, and restoring it to the faces. There is strong evidence in its favour in all these cases. *Dose*, gr. xv to ℥ii two or three times a day.

AMMONIÆ PHOSPHAS.—This is in small, transparent, colourless, rhombic crystals, readily soluble in water, and having a saline taste like that of saltpetre. It is chiefly used in Gout and Rheumatism; but though it has been many years before the profession, it has not gained an established reputation. *Dose*, gr. xv to ℥ii.

***AMMONII BROMIDUM** (not officinal in the Ph. Br.).—Bromide of Ammonium is not admitted into the new Pharmacopœia, but it has been recently brought into notice for the treatment of spasmodic affections of the respiratory organs; chiefly however for the treatment of Hooping Cough. It does appear to exert a beneficial influence upon the muscular part of the respiratory system; so that there is now considerable evidence in favour of its power in checking the convulsive whoops, and thereby alleviating one distressing portion of the disease. Its action upon the secreting surface is less manifest, and there is little evidence that it diminishes the secretion to any considerable extent. Upon the whole, there is favourable testimony as to the duration of the disease being shortened by its employment. According to the fullest information I can obtain, this remedy is used by an increasing number of practitioners, but is not constantly or continuously prescribed by the same man.

Bromide of Ammonium is a colourless substance, usually in small crystals, like very coarse salt. It is readily soluble in water, and has some pungency of flavour. It may be given at any stage of the disease. *Dose*, from gr. ii for a very young child, to gr. v or gr. x

three times a day. One grain per year of the child's age has been sometimes laid down as the rule for fixing the dose.

*ANILINE and its Compounds (not officinal in the Ph. Br.).—Aniline and its compounds, but chiefly the Sulphate, have been used in the treatment of *Chorea*. Aniline itself, when pure, is a limpid, colourless, oily, and volatile liquid, which is very slightly soluble in water, in which it sinks from its weight. It is an alkaline substance, but does not exhibit its alkaline characters readily to test-paper, owing to the oily stain which it produces. It rapidly absorbs oxygen, and acquires a brown colour. It combines with acids, and forms salts which are capable of crystallizing. They soon acquire a rosy-pink colour by exposure to the air, and when long kept, even in stoppered bottles, they frequently become purple. Aniline is obtained in small quantity during the destructive distillation of coal; but the amount is so small that one of the crystallized crowns of Rosaniline (one of its preparations) shown in the International Exhibition in 1862, contained the whole quantity yielded by £2000 worth of coal. It is however obtained in much larger amount from Indigo (Anil—hence its name of Aniline) by mixing it in fine powder with concentrated solution of Potash, and distilling it. An impure brownish oil passes over, which is purified by redistillation; the products being Aniline and ammoniacal gas.

Medicinal Properties.—In doses of 2 grains, Sulphate of Aniline acts as a sedative to the nervous system; and in larger doses it occasions depression, with oppression of the chest, producing blue lips in several patients. A cat to which mxxx of Aniline were given in divided doses died in an hour, with dilated pupils, hurried respiration, and convulsions

previous to death. There was general venous engorgement after death, and the following day the blood in all parts of the body smelt strongly of Aniline, as well as the brain also.*

The evidence of its medicinal value in *Chorea* at present amounts to this, that some patients have recovered after taking Sulphate of Aniline for a few weeks, who had previously been falling off, instead of improving at all under ordinary treatment, and that others have recovered in three weeks or a month without any other treatment than this medicine. It must be continued for some weeks before a cure can be looked for.

Dose, gr. i of Sulphate of Aniline in water acidulated with a few drops of dilute Sulphuric Acid, three times a day for a month or more.

ANTIMONII TERCHLORIDI LIQUOR.—Introduced for preparing Oxide of Antimony, which is used in making the Pulvis Antimonialis of the Ph. Br. The Liquor itself is only used as a caustic.

ARGENTI OXIDUM.—It is prepared by adding Lime-water to a solution of Nitrate of Silver, when the black Oxide of Silver is thrown down. It is intended as a substitute for Nitrate of Silver in the treatment of Gastrodynia, and Chronic Diarrhœa, and its advantage is supposed to be that it is less irritating. I have generally been disappointed in its effects. *Dose*, gr. ss in the form of pill.

It is said that Oxide of Silver ought not to be combined with Creasote for making a pill, as violent chemical action takes place between them. It is certain that this happens sometimes; but I have

* Thesis read before the University of Edinburgh by Dr. Dyce Duckworth.

repeatedly tried the experiment with various samples of Oxide, some old and some freshly prepared, and have only once seen violent action. It is better however to avoid combining these two substances in the same pill.

ARNICA ROOT has been introduced into the Ph. Br. for making the tincture which has hitherto been made chiefly from the flowers. This tincture is principally used externally in *bruises* and *superficial inflammation*. I have seen it useful when combined with Tinct. Ferri Mur. in *nervous Tinnitus Aurium*, and the combination has often been of more service than the Iron alone. *Dose* of the tincture, ℥xxx two or three times a day internally. As a lotion, fl. oz. ss, or fl. oz. i in fl. oz. viii.

Atropia has been introduced into the Pharmacopœia, whilst the Sulphate has been excluded. It is not easy to account for the change, which has not been a beneficial one. The *Atropia* itself requires so much spirit to hold it in solution, that when applied to the eye the present *Liquor Atropiæ* gives pain; whilst the Sulphate required so much less that it did not produce this effect.

Atropia has scarcely been used internally; but a case of fatal poisoning occurred recently from the employment of an ointment not much stronger than the *Unguentum Atropiæ* of the Ph. Br. Three grains of Sulphate of *Atropia* mixed with two drachms of Lead Ointment were applied to the raw surface of a blister on the neck. "A few minutes afterwards, the patient sprang up in agony; he rushed about the room, crying out that he was suffocated; that all his blood was rushing to his head; that all was black before his eyes; and that he felt as if he were being strangled. He tore the plaster from his throat, and

fell on the couch with his eyes fixed and his face red. Dysphagia and dyspnœa increased. His pupils were widely dilated; his eyes rolled about convulsively; the conjunctiva injected. All his limbs were convulsed as in violent chorea; respiration very hurried; pulse 140 to 150; he could not speak a word. Nothing could be introduced either into the mouth or the rectum; nor could a vein be opened. The patient became gradually worse, and died about two hours after application of the ointment.”—*Gaz. Méd. de Paris*, quoted in the *Brit. Med. Journ.*, March 25th, 1865.

Atropine Paper and Atropine Gelatine (not officinal) were proposed by Mr. Streatfeild, as a substitute for Atropia Solution, for dilating the pupil in ophthalmic practice. They are prepared by Mr. Squire, and a small square introduced into the eye produces very little irritation, and answers every purpose of the Atropia Solution. (See CALABAR BEAN, application to Eye, p. 59.)

BEBERU BARK has been introduced into the Pharmacopœia, under the name of Neetandra, for the purpose of obtaining the following salt.

BEBERIÆ SULPHAS.—This salt is obtained from Bebeeru Bark, which is the bark of the Greenheart, or *Nectandra Rodiæi*, a large forest-tree. It is in thin dark-brown scales, which become yellow when powdered. It is soluble in water, especially when slightly acidulated with dilute Sulphuric Acid. It has an extremely bitter taste, and is less agreeable than Quinine. It was brought into notice some few years since as a substitute for Quinine in the treatment of Ague; but although it appears to have been very successful in India, the reports of its efficacy in this country are not much in its favour. My own experi-

ence, as well as that of others, enables me however to speak decidedly of its value in Neuralgie affections, and as a general tonie in eases in which Quinine causes headaehe, and has therefore to be discontinued. In Strumous affections requiring Quinine, I have also seen it very useful in the same dose as Quinine. It could be obtained much cheaper than that alkaloid if the demand was sufficient, but at present the two substances are nearly equal in price. The recommendation of Beberine is that it never causes headaehe; its drawbaek is its intensely bitter, and not pleasant flavour.

Dose, in Neuralgie and Strumous affections the same as that of Quinine; and its flavour is more agreeably modified by Tincture of Orange Peel than by anything else. Dose, gr. i to gr. iii as a general tonie; gr. iii to gr. x in Ague.

BELA, or BAEL, is obtained from Malabar and Coromandel, and is the half-ripe fruit of the *Ægle Marmelos*, belonging to the Natural Order Aurantiaceæ. It is about the size of an orange, with a hard thiek rind and a deep red pulp like that of the pomegranate. When fresh and ripe the fruit is eaten as an agreeable article of diet, and is then very slightly laxative. Before it is fully ripe, it is sliced into five or six pieces and dried, both pulp and rind, and in this state is brought into this country. When dried in its half-ripe state it is astringent, and is used in Diarrhœa and Dysentery, either acute or chronic. It contains so much mucilage that a decoction quickly spoils, and the Pharmacopœia now contains a fluid extract which is not disagreeable, but has not the flavour of the fresh ripe fruit. It does not very speedily cure chronic Diarrhœa in this country, but it may be continued with safety for a considerable

time. *Dose* of the fluid extract, fl. oz. ss to fl. oz. i: which corresponds with oz. ss and oz. i of the Bael.

BELLADONNA ROOT has been introduced for the purpose of making the new Liniment. It is in pieces from six inches to nearly a foot long, and about the thickness of the thumb at its thickest end. It has a dirty-pale brownish-yellow colour, and no smell. At its thickest end there is often a short hollow portion, showing where the stem has been cut off. The Pharmacopœia directs that the root which is to yield the Liniment shall be imported from Germany, whilst the herb from which the Extract, Tincture, and Ointment are to be prepared, is to be grown in this country. It is of great consequence in making such preparations as the Extracts and Suceus, that the plants should be gathered as freshly as possible; and accordingly the home-grown plant is to be used for these preparations. But as the root is to be used for making the Liniment, the question of freshness was of less importance than that of luxuriance and strength; and the soil or climate of Germany appears to be specially favourable to the growth of Belladonna. The chief supply of Atropia has long come from Germany, and it can still be obtained from thence of equal quality and much cheaper than it can be prepared in this country. In America, on the contrary, Belladonna is so rare a plant that it is described by Dr. Wood as a European plant only cultivated in America for medicinal purposes, and that to a very small extent. It is therefore on account of its luxuriance in Germany that the Pharmacopœia desires the dried root to be obtained from that country.

Linimentum Belladonnæ.—Alcoholic Solution of Belladonna root and Camphor, in the same proportions as in Lin. Aconiti, viz. Belladonna root oz. xx,

Camphor oz. i, Spirit fl. oz. xxx, to make fl. oz. xx of the Liniment. It is an elegant preparation, and very superior to the old method of thinning Extract of Belladonna by water or any other liquid: See remarks on Lin. Aeoniti, p. 31. For use externally, m xxx or more should be applied by means of a camel's-hair pencil; or Soap Liniment or Glycerine should be added to render it capable of being applied by friction.

*BISMUTHI CARBONAS (not officinal in the Ph. Br.).—This substance is a pure white powder like the Nitrate, and is obtained by adding Carbonate of Soda to the acid solution of Nitrate of Bismuth. Its medicinal properties are the same as those of the Nitrate, and it is administered in the same dose. It is thought to be more soluble in the stomach than the Nitrate, and is given either alone or combined with alkaline carbonates. Many practitioners find the diluted mineral acids, especially the diluted Nitric Acid, a valuable addition to the Nitrate of Bismuth; the Pyrosis and feeble digestion for which this medicine is chiefly used being often merely palliated by alkaline medicines and Bismuth, whilst they are permanently cured by the mineral acids and this drug. It is scarcely necessary to say that Carbonate of Bismuth is incompatible with these acids, and can only be combined with alkaline remedies. *Dose*, gr. v to gr. x.

*BISMUTHI et AMMONIÆ CITRAS. (Not officinal in the Ph. Br.).—This is a solid substance in brilliant white crystalline scales, which are readily soluble in water. It is prepared as follows. (Bartlett, Amer. Journ. of Pharm., quoted by the Chem. and Drugg., May 15, 1865.)

Take of Subcarbonate of Bismuth 480 gr.

Citrate of Potassa 600 gr.

Nitric Acid 720 gr.

Distilled water, sufficient.

Dissolve the Bismuth in the Acid, and when effervescence has ceased add gradually to the solution a fluid ounce and a half of distilled water; dissolve the Citrate of Potash in two pints of distilled water, and to this liquid add slowly, and with constant stirring, the Acid Solution of Bismuth. Let the mixture stand for several hours, and then pour it upon a moistened paper filter; and when the liquid has nearly ceased to pass, wash the precipitate on the filter until the washings show no more Nitric Acid. Dry the precipitate on bibulous paper with a gentle heat.

Then take of this—

Citrate of Bismuth in powder, sufficient.

Liquor Ammon. Fort.,

Distilled Water, of each, sufficient.

Rub the Citrate with sufficient water to make it pasty, and add cautiously, with constant stirring, the Liquor Ammoniae, until a solution is obtained, observing to avoid an excess of Ammonia. Filter the liquid through paper until it is clean, and then spread it with a brush on panes of glass to dry.

This compound contains 50 per cent. of Oxide of Bismuth, and two grains of it dissolved in water will correspond in strength with f3i of Schacht's Liquor Bismuthi.

Medicinal Properties.—There has not been time to test them; but it is probable that they will correspond with those of Liquor Bismuthi and Bismuth generally. It is an elegant preparation, and will probably come into general use. *Dose*, gr. ii.

*BISMUTHI LIQUOR (not officinal in the Ph. Br.).—This solution of Bismuth, introduced to the profession by Mr. Schacht, of Clifton, is a valuable addition to our list of medicines. He has discovered

that by the combined action of Ammonia and Citric Acid, Oxide of Bismuth may be rendered permanently soluble in any amount of water. The Acid Nitrate has long been known as a liquid, but it is not soluble when diluted; for on the addition of water, the insoluble Nitrate is precipitated, forming the medicine which has been so long used and esteemed by the profession. The preparation of a soluble compound of Bismuth which is suitable for use in the ordinary form of a mixture is a decided gain to the practitioner.

The Liquor Bismuthi contains 1 grain of Oxide of Bismuth in each fluid drachm; and in this dose it has been found to answer all the purposes for which the Nitrate has hitherto been employed. It may be combined with bitter tonic infusions or tinctures.

Dose.—fʒi contains gr. i of Oxide of Bismuth, in the form of an Ammonio-Citrate, and this is the usual dose in which it is prescribed.

BONE BLACK or IVORY BLACK is a form of animal charcoal. It is very useful in poultices for sloughing sores, the smell of which it often entirely destroys, frequently at the same time abating the pain. It should be made into a poultice with about three times its weight of linseed-meal. I have frequently prescribed it also with great benefit to children suffering from mesenteric affections with very offensive stools. It may be usefully combined with powdered Cinchona and a little Muriatic Acid. *Dose*, internally, from gr. ii for a child a year old, to gr. xv or ʒi, or more, for an adult.

BROMINE is a very corrosive liquid, causing acute pain when applied to the skin. It has a deep brown colour and highly offensive odour. It is not used internally, except in the form of Bromides, only one of which, however, is officinal in the Ph. Br. It has

been applied in its undiluted form in America to check the progress of Hospital Gangrene, and the results are favourably spoken of. I am not aware of its having been employed for this purpose in this country.

*BROMIDE OF AMMONIUM (not officinal in the Ph. Br.).—See AMMONII BROMIDUM, p. 43.

BROMIDE OF POTASSIUM.—See POTASSII BROMIDUM, hereafter.

*CALABAR BEAN—ORDEAL BEAN—*Physostigma venenosum* (not officinal in the Ph. Br.).—This Bean is a very valuable addition to our Materia Medica, and oculists would now feel as if they had lost an ally which could be ill spared, if the supply of the drug should cease. Its poisonous properties had been known since the publication of Dr. Christison's valuable paper in 1855, but it is to Drs. Frazer and Robertson that the profession is really indebted for the knowledge of its remarkable property of contracting the pupil, for which alone this bean is at present used medicinally in this country. When the active principle of the bean is applied to the conjunctiva, it produces smarting at first, which in some cases is really painful; but the pain soon subsides, and in a period varying from fifteen minutes to half an hour the pupil becomes remarkably contracted. If it does not act in half an hour I have not found it efficacious without the introduction of a fresh supply; and the shortest period in which I have seen it produce decided contraction has been ten minutes, and this very rarely. Its action is not accompanied by any constitutional symptoms, such as those which frequently occur after applying Atropia. Its power over the pupil is not paralysed by the previous application of Atropia or Belladonna; but when the pupil has been

dilated by their influence, I have frequently found it necessary to use the Calabar Bean on successive days, the effect of the Belladonna being more permanent than that of the bean; so that although the pupil has contracted under its influence, it has dilated again in a few hours, and required a second application of the bean the following day. I have now under my care an interesting case, which further illustrates the necessity for its repetition. The patient had received a blow upon the eye, which deprived him of sight so completely that he could scarcely see where the window was situated, and the pupil was dilated to its widest extent. On applying a square of Squire's prepared Calabar Bean Paper, the pupil contracted to the size of the other more quickly than is usual, but the next day it was as widely dilated as before. The paper being reapplied, it again produced the same rapid contraction, and this time the pupil did not dilate again so widely as before, for the effects of the blow were beginning to subside, and sight was gradually but slowly returning. After an interval of a fortnight, the dilatation still returns from the effects of the blow, though the paper produces perfect contraction whenever it is applied.

Poisonous Effects.—When this Bean is used as an Ordeal it generally occasions the death of the person taking it; but it sometimes produces vomiting, without any other injury, in which case the suspected person is considered to be innocent. If it produces violent pain in the bowels without vomiting or purging, he is declared to be guilty; and if it causes purging within twenty-four hours, and so much paralysis of the legs as to prevent his running away when liberated, his guilt is also considered to be established. Dr. Christison made an experiment in his

own person, which nearly ended fatally. He first took 6 grains of the powdered seed, which was almost tasteless, and produced no sensible effect, except a very slight pleasant feeling of numbness for a minute or two at a time, during the night. The next day he took 12 grains, and in fifteen minutes felt slightly giddy. This giddiness rapidly increased, and was accompanied by a peculiar feeling of torpor over the whole frame. He now took an emetic, which acted freely, but he soon became so giddy and faint that he was obliged to lie down, though without having any uneasy feelings. In forty minutes after taking the poison he was very prostrate and pale, with the heart and pulse extremely weak and tumultuously irregular. His mental faculties were quite clear, and, though excessively faint, he had no unpleasant sensations. He now made several efforts to rise on his elbow, but without success; and though he attempted to vomit again, the abdominal muscles felt too weak to enable him to do so. His vocal organs also were too weak to permit of his speaking without great effort. During all this time he had no uneasy feeling of any kind,—no pain, numbness, or pricking, nor any sense of suffering from the great faintness of the heart's action. His mind was perfectly clear, and he consoled himself by thinking that as six grains had produced no sensible effect, twelve grains could not kill him. Shortly after this he became chilly, and had a vague feeling of discomfort; but after a sinapism had been applied over the whole abdomen he felt more comfortable, the pulse improved, he could turn in bed, and in two hours after taking the poison he fell asleep for two hours, but his mind was still so active that when he awoke he was not conscious of having slept. All the morning he was too weak to rise from bed,

and in the evening he was still so giddy that he was glad to be on the sofa. Next morning after a sound sleep, he was quite well. *The most sensible relief which he derived whilst in the alarming state above described, was from strong coffee and mustard poultices.*

In experimenting upon rabbits, Dr. Christison observed that the first effect produced was weakness, especially of the hind legs. This increased, until in a few minutes the animal dropped down, became unable to move, and respiration ceased in five minutes. The chest was immediately opened, and the heart was seen pulsating slowly and feebly for ten minutes.

A singular case of poisoning by this bean occurred last August in Liverpool, in which sixty children were poisoned, though death only resulted in a single case. The interest excited by the reported effects of the Calabar Bean upon the eye caused a demand for it in Africa, which resulted in several large canvas bagfuls being shipped for this country. The bags had given way; and many of the beans having fallen out into the hold had been swept up with other rubbish in discharging the ship, and above a bushel, as was afterwards ascertained, were thrown away upon some waste ground on which some children were playing. They soon discovered the beans, and one girl ate twelve; she became violently sick, and soon recovered. A boy who ate four or six died; and another child who ate only two was for some time in a very critical state, but ultimately recovered. The children were suffering acutely from pain, and many of them were retching violently, the vomiting having generally commenced about half an hour after eating the beans. On admission into the Southern Hospital they were all pale, sick and exhausted, and staggered about as if

drunk, though they had the full use of their senses ; the pulse was very low. In most of the children the pupils were unaffected ; and in a few only of the worst cases were they contracted.—(Dr. Cameron, Med. Times and Gaz., 1864.

Sulphate of zinc and mustard emetics, and stimulants eventually restored them all to health, except one. In this case the boy had eaten no dinner, and had not vomited previous to his admission, and he died so soon after reaching the hospital that the emetic had not time to act. The other children had just taken their dinners, and were playing during the interval between schools. They cracked the beans and ate the kernels, but not the shells.

Post-mortem Appearances.—There was nothing whatever to indicate the presence of a deleterious substance in the system, except the chemical analysis. The blood was very fluid ; but beyond this there were no pathological signs.

Characteristic Effects.—The Calabar Bean, in doses of a few grains, produces extreme debility and paralysis of the voluntary muscles : this extends to the respiratory muscles and the heart, which first beats with great feebleness and irregularity, and then ceases altogether. The mind is perfectly clear throughout, and there is often an entire absence of pain or uneasiness. In the cases mentioned above, in which several whole beans had been eaten, there was considerable pain. It may be that these remarkable properties will be turned to valuable account in medicine hereafter, but at present the only employment of this powerful poison is in ophthalmic surgery, for the purpose of contracting the pupil. In Christison's experiments no notice was taken of its effect upon the pupil.

Description.—The Calabar Bean is from one inch to one inch and a quarter long, and nearly three-quarters of an inch broad. It is a very thick bean, and is marked by a very broad deep hilum, extending the whole length of the seed. It has a polished surface, and is of a dark-brown, sometimes almost black colour. Some of the seeds retain their vitality for several years, for one which had been in this country eight years was sown in a pinery in 1863 by Dr. Neill, of Liverpool, and sprouted in about six weeks. In three weeks after its first appearance above ground it had attained the height of four feet eight inches; and I exhibited a drawing which I made from it at the *soirée* given by the Philosophical Society to the British Medical Association in Bristol in 1863. This plant is still in full vigour; and there is also another in the Liverpool Botanic Gardens, which was sent from Africa direct, and survived the voyage, though it had been injured by it. It is a true leguminous climbing plant, and when full-grown attains a height of about fifty feet, with a twining stem about two inches in diameter. The flowers form a pendulous raceme of beautiful red blossoms, of which a full description, with large engravings, is given by Professor Balfour in the *Trans. Roy. Soc. Ed.*, vol. xxii. p. 305.

The name of *Physostigma* has been given to it by Professor Balfour, in consequence of the remarkably inflated summit of the stigma (*φυσάειν*, to inflate).

Chemical Properties.—Messrs. Jobst and Hesse, of Stuttgart, have discovered an alkaloid which is the active principle of the Calabar Bean, and have given it the name of *Physostigmine*. It is a brownish-yellow amorphous mass, having the form of oily drops, when first separated. It only exists in the cotyledons, and

is obtained by a complicated series of treatment by means of Alcohol, evaporation and subsequent solution by Ether. Twenty-one beans yielded only a small quantity of this alkaloid.

The following reactions were obtained by Dr. Edwards on a chemical examination of the contents of the stomach and small intestines of the boy who was poisoned by eating six beans. An alcoholic extract was prepared from the contents, and after purification by ether, an extract was obtained which caused marked contraction of the pupil in the eye of a rabbit when applied to it externally. *This ethereal extract corresponded in its reactions with a similarly prepared extract of the beans under examination.* The chemical reactions on a watery solution of the ethereal extract are as follows:—1. A pink colour, struck by caustic potash, which gradually increases in intensity to a deep red, and when mixed with chloroform forms a deep red chloroformic solution, which separates from the clear yellowish supernatant liquor. 2. A red colour, struck by strong sulphuric acid, with separation of a resinoid coagulum. 3. A violet colour, changing to red by sulphuric acid and crystals of bichromate of potash. 4. A similar colour, with sulphuric acid and binoxide of manganese, retaining the purple colour for a long time. 5. A yellow precipitate, with solution of iodine in iodide of potassium. 6. A purple colour, with trichloride of gold and reduction of metallic gold. 7. A yellow colour, struck with caustic ammonia, which, exposed for some hours to light, turned green, and finally a deep blue. A few

Note.—Nos. 3, 4, and 5 were first proposed as tests by Dr. Frazier, of Edinburgh.

drops of the aqueous emulsion of this ethereal extract was inserted under the skin of a frog's back. In a short time the animal manifested an indisposition to movement, and became very quiet. In the course of an hour it became unable to jump, or to change the position in which its limbs were placed, and in about two hours it became perfectly flaccid, and insensible to any external irritation; although stimulated by strychnine, it was incapable of being roused to muscular exertion, and soon expired, having previously exhibited very irregular respiration and pulsation. A second portion of the emulsion was exhibited to a mouse, which became soon paralysed in its limbs, and died after a few hours. A third portion was introduced into the circulation of a mouse by the ear, and after 24 hours the poison operated fatally, by complete paralysis of the limbs and senses, and the animal died by syncope. A fourth portion of the emulsion from the intestines of deceased applied to the eye of a rabbit caused strong contraction of the pupil after three quarters of an hour.

Methods of using the Calabar Bean.—The active principle of the Calabar Bean is soluble in Alcohol, and an extract can be obtained by this means, which constitutes about 2·7 per cent. of the seed. When this extract is rubbed down with water, it forms a muddy semiliquid preparation, which, however, answers the purpose perfectly well. It has been prepared of various strengths: and when it is so strong that a drop represents a grain of the bean, a single drop suffices to contract the pupil. The alcoholic extract is soluble in Glycerine, and this also forms a useful and efficient preparation. I prefer, however, (after trying them all,) the paper prepared by Mr. Squire, which possesses every advantage of the other methods of

application, and is far more clean and simple. Each little marked portion, about one-eighth of an inch square, is sufficient for the purpose, and I have never yet been disappointed in using it. The little square may be lifted up by touching the end of a probe with the tip of the tongue, and then applying it to the paper; the lower lid should then be drawn down, and the paper placed upon the eye below the margin of the cornea. It excites little or no irritation, and remains until it has produced its effect without being washed away by the tears. The explanation of the little irritation produced is easy. The lower lid scarcely moves in winking the eye, the motion being almost entirely confined to the upper lid. Hence the paper, being applied below the cornea, is free from the action of the upper lid, and remains almost unmoved and innocuous for a considerable time.

* CARBOLIC ACID (not officinal in the Ph. Br.).—This substance has been brought before the profession with accounts of its efficacy, which remind us of the reported wonders wrought by Creasote at a time when it was half-a-guinea an ounce. The cases benefited are the same, and their effects are similar in every respect. This is not surprising, for the two substances are substantially the same, though the Carbolic Acid has been put forward, almost as if it were a newly-discovered agent.

Both Creasote and Carbolic Acid are obtained from a similar source and by a similar agency, viz. by the action of a destructive amount of heat upon vegetable matter; the difference between their sources being, that Creasote is obtained from the destructive distillation of fresh vegetable matter, viz. wood, whilst Carbolic Acid is derived from a similar destructive distillation of fossil vegetable matter, viz. coal. In both

cases various compounds of Hydrogen, Oxygen, and Carbon are produced in the form of the black semi-fluid liquid called Tar; and by a complicated process of neutralizations and distillations, a fluid is at length obtained which consists of variable proportions of Hydrogen, Carbon, and Oxygen, and has the same essential odour and chemical characters from whichever source it is derived, but differs in some minor respects hereafter to be mentioned. In the one case, however, it is called Creasote, and in the other it is designated Carbolic Acid; whilst, as a matter of fact, the resemblance between the two substances is so close, that what has long been sold in the market as Foreign Creasote, is now recognized as being almost pure Carbolic Acid; and all the most recent chemical authors, in writing upon these substances, express themselves in similar language to the following, from Gregory's 'Handbook of Chemistry,' 4th ed. vol. ii. p. 465:—"So great is this resemblance that I am inclined to consider Creasote as a somewhat impure Carbolic Acid." It would appear indeed as if the essential characters of both, whether chemical or medicinal, are due to the Carbolic Acid which constitutes the chief portion of the one and a variable smaller proportion of the other; whilst the differences of colour, odour, and specific gravity, etc., are due to the Eupion, and other hydrocarbons, which are also present in small proportions in Creasote.

The differences between Creasote and Carbolic Acid are shown below. The Creasote was made by Mr. Morson, from Archangel Tar, and the Carbolic Acid was obtained from Prof. Calvert, in order that the two substances should be as genuine and perfect as possible.

Creasote.

Sp. gr. 1·065.

Very pale straw-colour, not perceptible by gas-light.

Peculiar odour of Creasote.

A pine-wood chip dipped first in Creasote and then in Muriatic Acid, slowly changed colour to a transitory green.

Soluble in Acetic Acid, but separates on the addition of water, and therefore is inapplicable for making the *Mistura Creasoti*, of the Ph. Br.

Fluid at all ordinary temperatures.

The so-called Foreign Creasote agrees more nearly in its colour and smell with Carbolic Acid than with the genuine Creasote. It also readily makes the *Mistura Creasoti*; and it assumes a faint green colour when treated as above with Hydrochloric Acid. It corresponds, in short, more nearly with Carbolic Acid than with Wood Creasote.

Dose.—The same as that of Creasote, whatever be the purpose for which it is intended. For *internal use*, gtt. i to gtt. ii, in the form of pill, with flour and some soft extract; or in the form of mixture, dissolved in two or three drops of strong Acetic Acid (it

Carbolic Acid.

Sp. gr. 1·065.

Colourless.

Odour of Creasote, modified by nauseous, very unpleasant smell.

A pine-wood chip treated as in the case of Creasote, rapidly assumed a transitory green hue.

Soluble in Acetic Acid, and does not separate on the addition of water. Makes the *Mistura Creasoti*, Ph. Br., without difficulty.

Forms white crystals at a temperature between 40° F. and 50° F.

need not be the glacial) and then mixed with water. When dissolved in four times its bulk of spirit, 5 drops represent 1 drop of Carbolie Acid, and may be dropped into milk, which covers the flavour better than most vehicles. *For external use* it is applied undiluted, by means of a sponge, to relaxed mucous surfaces and in Diphtheria. It corrugates and whitens the surface, but does not act as a caustic. For foetid sores, a lotion consisting of 1 part of Carbolie Acid dissolved in Acetic Acid is added to 40 parts or more of water, according to the object in view and the state of the ulcer. f ʒii of Carbolie Acid, f ʒi of Liq. Potassæ and fl. oz. viii of water, form a lotion recommended by Mr. Turner, of Manchester.

*CERIUM, OXALATE OF, (not officinal in the Ph. Br.,) is a colourless power, insoluble in water, and without taste or smell. It has been recommended in vomiting, not dependent upon organic disease; and the testimony of competent observers is, on the whole, favourable to its utility in sympathetic vomiting, especially in the early period of pregnancy. It has not been admitted into the new Pharmacopœia; but there are many medicines of recent introduction, which have been more deservedly rejected than Oxalate of Cerium.

Dose.—Gr. ii three times a day, for a moderately extended trial.

CHINCHONA* or CINCHONA.—CHINCHONINE,

* The following works have supplied the principal materials for this article, and are now referred to in general terms to save constant reference:—‘Nueva Quinologia.’ By Mr. J. E. Howard. Markham’s ‘Travels in Peru and India.’ Murray; London. And

CINCHONINE or CINCHONIA, and CHINCHONIDINE (not official in the Ph. Br.).

The recent attempts to cultivate Chinchona in India have given an additional interest to its natural history of late, and a short account of the subject may not be out of place in this Analysis, although Chinchonine and its salts have not been dignified by official recognition in the British Pharmacopœia.

The Chinchona forests are natives of the Andes, and cover an immense tract of country, extending from 10° north of the Equator, to 19° south of the Line; or a space equal to the whole length of Europe, from the White Sea to the Mediterranean. There is however a curious circumstance connected with the distribution of these trees, which has been most unfortunately illustrated in the Dutch Chin-

a summary of this work in the Pharm. Journ. for June, 1863. M. Briquet, 'Traité Thérapeutique de Quinquina.' Masson; Paris, 1855. 'On the Cultivation of Quinine in Java and British India.' By Dr. J. E. De Vrij. London, 1865. Pharm. Journ., from 1854 to 1865.

The trees commonly called Cinchona were named by Linnæus "Chinchona," in honour of the Countess of Chinchon, one of the first Europeans who was cured by the bark of these trees. The first *h* has dropped from the name so long since as to have become generally forgotten, and the authors of the 'British Pharmacopœia' have retained the modern method of spelling the name. Mr. J. E. Howard, Mr. Markham, and other eminent authorities on the subject, have lately restored the true spelling, and in the following article the name is generally spelt Chin-, though not always.

chona plantations in Java. There are above thirty different species of Chinchona, of which however only nine are known to possess valuable medicinal properties. These valuable species are very widely distributed along the whole range of the Andes, with the exception of about a hundred and twenty miles, between lat. 10° and 12° S.; and as this part of the country happened to present advantages over many others, the agent sent out by the Dutch Government to obtain plants for the purpose of cultivating them in Java, unfortunately collected most of his specimens in this district, before it was known that the species which grew here were practically useless. These trees (*C. Pahudiana*) have been cultivated with great care and expense by the Dutch Government; but after many years' trial their worthless character has been fully established, and their cultivation has at last been given up in favour of those which have been proved to contain the febrifuge alkaloids, and which have now become firmly established both in the East Indies and in Ceylon, Jamaica, Trinidad, and some other parts of our tropical possessions.

The difficulties encountered in transplanting the Chinchona from its native home have been so great, as almost to appear insurmountable; and the narration of the unsuccessful attempts which have been made by various nations, reads almost like a romance in the work lately published by Mr. Markham on the subject. Unyielding perseverance has, however, at last been crowned with success, and there are now several hundred thousand vigorous plants in India, Java, and elsewhere.

The Chinchona only grows at considerable elevations, the lowest being about 3000 feet, or at a height equal to the summit of Snowdon, and the highest

being about 9000 feet, or 2000 feet higher than the hospice of St. Bernard. There is the greatest possible diversity in the situations which the various species select for their growth; for whilst *C. succirubra* (the red bark) grows in a deep, rich soil, *C. Condaminea* (a pale bark) is found in the most inaccessible regions, amongst rocks which are barely covered by an inch of earth; and *C. Calisaya* (or the yellow bark) is luxuriant on the dry, grassy slopes of the mountains, whilst *C. micrantha* (another pale bark) has its graceful branches and its beautiful clusters of flowers drooping over the margins of deep rivers. Many of the most luxuriant trees are found on open spaces free from shade, whilst others are met with in the depths of the forest, where it is so thick that the sun pierces it with difficulty even at noon.

None of the circumstances above mentioned are, however, sufficient to explain the difficulty that has been experienced in finding a situation in which these valuable trees may be cultivated with a prospect of success; for there is no lack of tropical regions possessing mountains from three to eight thousand feet high, with appropriate soil, and with every variety of light and shade. The real difficulty lies in the fact that the Cinchonas require nine months of rain in the year, and a warm moisture during the other three; with a temperature which shall generally resemble that of an English summer, although at night the thermometer may sometimes sink to the freezing-point.

The Himalayas possess the requisite altitude, and their temperature would suffice for the health of the Cinchonas; but they have only a four or five months rain in the course of the year, and for some time it was doubtful whether the trees would live through the remaining period of drought. There are other tro-

pieal ranges to which the same remarks will apply. After very anxious search, Mr. Markham at length selected a portion of the Neilgherry Hills, near the southern extremity of Hindostan, for the cultivation of these trees; because in this part of the Indian peninsula the hills are exposed to the south-west monsoon from May to September, which brings about four months rain, and to the north-east monsoon from October to April, which is accompanied by another four months of rain: and in this situation the Indian Government has commenced the cultivation of the *Chinchona* with such success, that there are now many hundred thousand plants in perfect health, some of them being twelve feet high, having branches which extend several feet in every direction, and being covered by bark that has yielded as large a percentage of Quinine and Cinchonine as the ordinary specimens of bark from South America itself.

When we turn from the general description of the *Chinchonas* to the individual species, we find that they do not grow indifferently along the whole range of the Andes, but that they are strictly limited to certain portions of it. Thus the *C. succirubra*, which yields the red bark, is only found on Mount Chimborazo; and *C. Calisaya*, which furnishes the yellow bark, is never met with further north than lat. 12° S., whilst the various species which yield grey bark flourish over the wide range from lat. 10° N. to 10° S.

One species only (the *C. succirubra*) yields red bark which is so called from the colour of the liber, or inner woody bark; and a single species only (the *C. Calisaya*) furnishes the yellow bark, which likewise derives its name from the colour of the liber; but at least seven species yield pale or grey bark, which takes its name from the grey colour imparted to its general

appearance by the white or ashy-coloured lichens by which the trees are overgrown. These lichens indicate that the grey barks inhabit a more exposed situation than the red and yellow barks, which is confirmed by observation; for whilst *C. succirubra* only grows at a very moderate elevation, in rich soil, near the equator, and *C. Calisaya* is found on grassy slopes also at a moderate elevation, the grey barks, as a general rule, flourish at a higher altitude, in wilder situations, and on more barren soils. The great variety of names by which the grey barks have been described is liable to be perplexing until it is explained. In the mountainous district around the little town of Loxa, the Chinchona was first known to botanists, and the bark was therefore called Loxa Bark, and also acquired the title of Crown Bark, because the Spanish Government claimed the monopoly of it. Linnæus gave the trees the name of *Chinchona officinalis*, believing that all the bark was derived from the same species of plant. Humboldt, however, changed the name, when it had been discovered that there were several different species which yielded a medicinal bark, and called that which grew near Loxa *C. Condaminea*, in honour of the eminent French botanist La Condamine, who first described them. Some of them grow, however, upon a mountain named Uritusinga, and Pavon, a distinguished Spanish botanist, gave them the name of *C. Uritusinga*; and finding that there were some well-marked botanical differences amongst them, he named another *C. Chahuarguera*, from a fanciful resemblance between their bark and a pair of native breeches (*chahuar*). A third botanist, Tafalla, discovered other differences, and named the species he had described *C. crispa*. These three names correspond, therefore, with Humboldt's *C. Condaminea*, which embraced all three.

In New Granada, however, the Chinehona was also discovered, and as the trees were more or less covered with lichens, the bark was called grey bark,—and as Carthagena was the port from which it was shipped, it was designated as Carthagena bark; whilst the tree acquired the name of *C. lanceifolia*, from the shape of its leaves.

At a later period still, the Chinehona was discovered in Northern Peru, in the district surrounding Huanuco; and as the trees in this region grow in elevated and exposed situations, they also yield a grey bark, which has been called Huanuco bark. Three species have been discovered in this district, viz. *C. nitida* and *C. micrantha*, described by the Spanish botanists Ruiz and Pavon, and one which has only lately been perfectly established by Mr. J. E. Howard, who has given it the name of *C. Peruviana*. All these trees possess valuable medicinal properties, and are now all successfully cultivated in India and elsewhere. The following table exhibits their most important features. The higher proportion of alkaloids have occasionally been obtained, but the British Pharmacopœia considers 2 per cent. as a fair average quantity to be looked for in testing the bark; and accordingly states that all the officinal barks should yield 2 per cent. of alkaloids, whether it is quinine or the others that are present in the bark under examination;—

<i>Name of Species.</i>	<i>Alkaloids.</i>	<i>Proportions.</i>	<i>Place of growth.</i>
<i>C. succirubra</i> (red)	Quinine Chinchonine	3 or 4 to 8·5 per cent.	Chimborazo.
<i>C. Calisaya</i> * (yellow)	Quinine	2·5 to 5 per cent.	Bolivia and Southern Peru.

* This species generally attains the size of a hand-

Name of Species.	Alkaloids.	Proportions.	Place of growth.
<i>C. lancifolia</i> (grey)	Quinine Chinchonine	3·5 per cent.	New Granada.
<i>C. Uritusinga</i>			
<i>C. Chahuarguera</i>			
<i>C. crispa</i> (all grey, and ge- nerally called <i>C. Condaminea</i>).	Quinine Chinchonidine	3·5 per cent.	Loxa.
<i>C. micrantha</i>		2·2 to 2·7 per	} Huanuco.
<i>C. nitida</i>	Chinchonine	cent.	
<i>C. Peruviana</i>	Chinchonine	3 per cent.	
(all grey)	Chinchonidine		

On the Method of Cultivating the Chinchona, adopted by Mr. M'Ivor, and its results.—In the early experiments on Chinchona cultivation in Java, the plants were grown under the shade of other trees, in order to imitate the conditions under which they are found in the American forests; and in attempting to propagate them *large* slips were employed, or seeds were relied on. The results, however, of this method were not encouraging, and Mr. Markham observed, during his researches in the Chinchona forests in Peru, that the most healthy and vigorous plants were those which grew in open spaces, exposed to wind and sun. It was also found that the bark which grew at high altitudes was generally richer in alkaloids than that

some forest tree, but when it grows at a much higher elevation it becomes a mere shrub; and to this small variety the name of *C. Josephiana* has been given, in honour of Joseph Jussieu, an eminent French botanist, who spent fifteen years in exploring the Chinchona forests, and died broken-hearted in consequence of being robbed by his servant of his whole collection made during this period.

which grew lower down upon the mountains. Influenced by these observations, and by his profound practical knowledge in the cultivation of trees generally, Mr. M'Ivor, the Superintendent of the Government Plantations at Ootacamund, determined to expose the young plants to free air and light as soon as they had fairly struck their roots, and put out their early leaves in the propagating-houses. He also found, by careful experiment, that the smaller the slip the more likely was it to root; and he therefore adopted the plan of making very small cuttings, and, in some cases taking single leaves, with the axillary bud attached, and striking the new plants from these. The result of his method has been most satisfactory; for the 635 plants with which he commenced had increased in less than three years to about 277,000; that is to say, every plant had produced above 400 in less than three years. His success is still more strikingly shown in the increase obtained from a single young specimen of the *C. Uritusinga*, which was presented to the Indian Government by Mr. J. E. Howard. It was 5 feet high; and by taking small slips and "eyes" from it, Mr. M'Ivor has obtained no less than 6350 healthy shoots in less than nineteen months; and the bark obtained from the branches of these cultivated Chinchonas has been found by Mr. Howard to contain as large a percentage of alkaloids as corresponding specimens from South America itself. By these means the plantations have increased to such an extent that there is every reason to believe that the Neddiwuttur plantation alone, in the Neilgherry Hills, will shortly yield 75,000 lb. weight of bark every year.

A circumstance of importance in the selection of future sites for cultivating the Chinchona, has been

already learnt from the experiments in India, which is in some degree opposed to previous anticipation. It is that the plants suffer more from excessive moisture than from too much drought, and that they may be successfully cultivated as profitable quinine-producing shrubs, with a smaller amount of rain than the uncultivated trees appear to require in their native home. Some of the species have a channelled leaf-stalk, and it has been found that during excessive rain the moisture lodges in this groove, and gradually rots the bark at the juncture of the leaf; the decay continues to spread into the substance of the wood, and the plant eventually dies. The experiment has therefore been commenced of planting the Chinchonas in the Himalayas, where it was at first thought that there would be too little moisture; and the plantation at Darjeeling, at the foot of the Himalayas, contained 19,000 healthy plants in July, 1864.

On the mountain of Hakgalle, in Ceylon, 5200 feet above the sea, there were above 22,000 thriving plants in August, 1863.

In the early part of 1864 the *C. succirubra*, *C. micrantha*, and *C. nitida*, all valuable alkaloid-producing species, were in a most healthy state in the Cold Spring plantation in Jamaica (4000 feet above the sea), the plants of the first-named species being many of them six feet high, and above two inches thick at the base of the stem. In Trinidad also they have now become successfully cultivated.

The necessity for cultivating these trees in India and elsewhere, instead of trusting to the American forests, has long been apparent to those who have known the condition of their native regions. During the two centuries which have elapsed since the Spaniards made known their value to Europe, only one single

tree is believed to have been planted to supply the place of those which have been cut down; and so reckless has been the destruction of the forests, that some entire districts which used to supply large quantities of Bark, have ceased to yield any; and in others from which it still comes, it is necessary to travel many days' journey before finding a single tree, although the road lies through what was formerly the very heart of the Chinchona forests. The cost of Quinine to the Indian Government was above £12,000 in 1857, and it was calculated that it would be more than three times this amount in the following year.

The Medicinal Value of the Chinchona Alkaloids.—The value of Quinine is so well known as to render it unnecessary to dilate upon it in this place, and we shall therefore direct our attention chiefly to the remaining three alkaloids, viz. Quinidine, Chinchonine and Chinchonidine, which exist in various proportions in the bark of the different species above described. On this account they have been introduced into India and elsewhere, as well as the *C. Calisaya*, which contains almost exclusively Quinine. This latter alkaloid has so completely superseded the others in popular, and even in professional estimation, that it is a matter of very great difficulty to obtain any information of trustworthy extent upon their effects in this country; and whilst Dr. Maepherson, of Calcutta, thinks so highly of Chinchonine as to consider it of little importance whether the Quinine or the Chinchonine-yielding species are cultivated in India, Dr. Daniell states that in Sierra Leone Chinchonine affected the head so severely, without cutting the fever short, that he was obliged to discontinue its employment. Up to the present time, however, this is the principal evidence of its injurious effects in medi-

cinal doses ; and it is difficult therefore to avoid the suspicion that there must have been some unexplained circumstance, in addition to the Chinchonine itself, to account for this unusual result. I have received replies to inquiries on the subject, similar to the following, from the experience at Guy's Hospital :—"Cinchonine was tried some time since, but the result was not satisfactory, and it was given up;" but no reports of its having produced positive injury in medicinal doses ; whilst one of the reports specially notes that it does not affect the head so much as Quinine.

The present state of our knowledge appears to be the following :—Pale Bark obtained from the *C. Condaminea*, which yields almost exclusively Cinchonidine (Howard), was the bark which first gained celebrity for the remedy by curing the Countess of Chinchon, in honour of whom the genus was subsequently named ; and the Jesuits' or Chinchona Bark had a well-established reputation in Europe before the *Calisaya* or Quinine-yielding Bark was known in medicine. Previous to the discovery of Quinine and Cinchonine by Pelletier and Caventou in 1820, the various barks, grey, red, and yellow, had an almost equal reputation for the cure of intermittent fever ; although since that time Quinine has almost entirely superseded both the barks and Cinchonine, as it can be thoroughly relied on, and is efficacious in a smaller dose.

Chinchonine or *Cinchonine*.—The most elaborate, and by far the best reports on this substance, are given by M. Briquet, who made numerous experiments upon dogs with this alkaloid, and with Quinine, by injecting solutions into the jugular vein. In some instances death was the almost immediate result (within two minutes), and in every case there was failure of the arterial pulsations both in strength

and frequency, feeble respiration, and general collapse of the muscular system. In some cases there were convulsions, which terminated quickly in death, whilst in others they continued for some hours, and the animals eventually recovered.

Post-mortem Appearances.—In every case there was injection of the pia mater, sometimes very considerable; the lungs were healthy; the right side of the heart was distended with blood, whilst the left was contracted and empty, and the entire organ was sometimes flaccid. The principal post-mortem appearances were therefore indicated in the brain. Similar results had been obtained by injecting solution of Quinine, with this difference, that Quinine was more uniformly and powerfully fatal, Cinchonine appearing to be about one-third weaker in this respect. (Briquet, op. cit. p. 103.)

Therapeutical Effects of Cinchonine.—In order to obtain trustworthy information on this point, I have written to numerous medical men of high standing in the English counties which are most affected by ague, but the answers have almost always been, "Cannot say anything about it, not having tried it, as I rely upon Quinine," etc. The following information is obtained from Briquet's treatise, and my own inquiries (op. cit. p. 521, et subs.).

M. Balby, l'Hôtel Dieu, cured 25 intermittents out of 27 in 4 days.

M. Hudellet, at Bourge-en-Bresse, only failed in 9 out of 507 cases of intermittent fever, some of which were mild and others severe.

Dr. Pepper, Pennsylvania, treated 15 cases, accompanied by enlarged spleen; 11 were arrested by a single dose of Sulphate of Cinchonine; 2 were by two doses, and the remaining 2 by two large doses.

M. Briquet himself has treated ague of all types by Cinchonine, with as much success as by Quinine. There has seldom been a second attack, and very seldom a third; the enlargement of the spleen and general cachexia have yielded as favourably as to Quinine.

Mr. Taylor, Essex, ('Lancet,' 1863-1864,) reports very favourably of its results in cases under his care.

Dr. Conrad, of the Pennsylvania Hospital, says that the three alkaloids are used indiscriminately and in the same doses.

Dr. Thomas says that Sulphate of Cinchonia is used with success as a substitute for Quinine in the treatment of ague in the Philadelphia and Northern Dispensaries, the Western Clinical Infirmary and the Philadelphia Hospital, Blockley. It has lately been introduced into the U. S. army. (Parrish's 'Treatise on Pharmacy,' Philadelphia, 3rd ed.)

Mr. Kendall and Dr. Buckle, King's Lynn, Norfolk, have used it extensively in the hospital with excellent results. It does *not affect the head so much as Quinine*.

Dr. Arnold, Liverpool, has used it in Tic-Douloureux with as much benefit as Quinine, but in larger doses.

On the other hand, at Guy's Hospital, it has been tried but not found so useful as Quinine, though the dose was larger, and it has gone out of fashion; and Mr. Wales, of Downham Market, Norfolk, has been disappointed by it. He has given it in 5-grain doses without preventing the recurrence of the paroxysm, whilst half this dose of Quinine has afterwards cured the cases.

'The Jamaica Guardian' (see Pharm. Journ., April, 1864, pp. 514-5) says, "The results of experimental trials in West Africa and Jamaica prove the curative

effects of Cinchonine and Quinine to be 2 and 5. The Council of Health of the French army, several years since, insisted on the difference between the toxical energy of Cinchonine and its therapeutical inefficiency, and one of the chief military surgeons of France, M. Lévy, sums up his results as follows:—"No military physician has attempted the employment of Cinchonine in the malignant fevers (*fièvres pernicieuses*), a reserve which is recommended by the results of experiment."

The evidence in its favour is clearly very strong, and at present decidedly outbalances the evidence brought against it. There is therefore every reason for encouraging the cultivation of the grey bark in India and elsewhere, especially as they thrive in situations too lofty for the yellow and red barks, and may be used green with almost as much benefit as when dried. It is probable that they will eventually become as essential a part of the cottager's garden in India as apple-trees or gooseberries are in this country.

Dose of the Cinchonine Salts.—M. Briquet gives one-third more than his ordinary dose of Quinine. M. Hudellet gave 5 to 6 grain doses; Dr. Pepper, 7 to 10 grain; Mr. Taylor, 2 to 5 grain; Dr. Arnold, 5 grain, and the Lynn Hospital, 2 grain doses. All give it dissolved by the aid of a little diluted acid.

Chinchonidine, by this name, is almost of nominal medicinal value or interest, as it cannot be obtained in the market: but the *C. Peruviana* (a grey bark), one of the species whose febrifuge powers have been well established, yields Chinchonidine chiefly; and this alkaloid constitutes the principal portion of much of the so-called Quinidine, which is manufactured in Germany from New Granada barks. It was by this alkaloid that the Countess of Chinchon was cured, as

already stated; and a curious illustration of its value was obtained unexpectedly in the Philadelphia Hospital in 1855. Dr. Cullen treated 180 cases of intermittent fever with what was called Sulphate of Quinidine prepared in Germany; but it happened that it was tested chemically, and the result of the tests recorded, without the author being aware at the time that the results obtained corresponded with Chinchonidine, and not with Quinidine, and proved that this name had been incorrectly applied to it.

180 cases were treated by Dr. Cullen in the Philadelphia Hospital (*Amer. Journ.*, N.S., vol. xxix., 1855). The ages varied from 6 years to 58, but the very large majority was from 20 to 40 years old.

About one-third of the cases were tertian ague, and two-thirds quotidian, the patients having generally been greatly exposed to ague influences, and many of them being of bad habits; many of them had enlarged spleens. The duration of the cases previous to admission varied from a single day to 8 months, but those which had existed for days only were 110; those which had lasted for weeks were 57, and those which had been ill for months were 13. The great majority of the cases were of from 10 to 14 days' duration previous to admission into the hospital.

The quantity of Sulphate of Chinchonidine used in each case was generally 15 grains in 5 doses of 3 grains every hour preceding the expected chill; and in 129 cases out of the 180 there was no return of the rigour. In 32 cases it returned the next day, when a second dose prevented its further occurrence, and in 19 cases a chill returned after an interval varying from 3 days to 2 or 3 weeks.

The paroxysms of ague having been thus arrested by the Chinchonidine, the patients for some time

afterwards took Compound Infusion of Cinchona and Citrate of Iron until they were thought to be safe from liability to relapse.

Quinidine.—There is much evidence in favour of this alkaloid in the cure of intermittent fevers abroad, and in this country also it has been successfully employed; but as the dose is much larger than that of Quinine, it is but little used now in this country. What is called Quinidine is often really Cinchonidine, as stated above. *Doses* generally much larger than those of Quinine.

Composition of the Cinchona Alkaloids.—Although there is so great and acknowledged a difference in the medicinal powers of the alkaloids, they resemble each other very closely in chemical composition. Quinine and Quinidine being identical in their composition, and Cinchonine and Cinchonidine, whilst the latter only differs from Quinine in containing two equivalents less oxygen. Ariëma obtained from *C. pubescens*, which is medicinally worthless, contains two equivalents more oxygen.

Their composition is as follows:—

	C.	H.	L.	O.
Cinchonine	40	24	2	2
Cinchonidine				
Quinine...	40	24	2	4
Quinidine				
Ariëma ...	40	24	2	6 + HO

Until 1854 great uncertainty existed respecting the nature and composition of Quinine, in consequence of the variable results obtained from it both chemically and medicinally. M. Pasteur explained the origin of these discrepancies by discovering that in ordinary Quinidine, especially that prepared in Germany, there

were two distinct substances, one of which turned polarized light strongly to the right, and the other strongly to the left. They also differed materially in appearance when exposed to the air, the first efflorescing quickly, whilst the second remained unchanged. He retained the name of Quinidin or Quinidine for the first, and gave that of Cinchonidine to the second. As above stated, it is isomeric with Cinchonine, but it behaves very differently with polarized light; and it often constitutes the greater part of so-called Quinidine.

Principal differences amongst the Cinchona alkaloïds :—

	<i>Soluble in</i>	<i>Turns polarized light</i>	<i>With Chlorine and Ammonia.</i>
Quinine	60 ether.	Strongly to left.	Green.
Quinidine	90 ether.	„ to right.	Green.
Cinchonine ..	not in ether.	„ to right.	Not green.
Cinchonidine ..	scarcely in either.	„ to left.	Not green.

*CHLORODYNE (not officinal in the Ph. Br.).—This secret medicine has been so much used that various formulæ have been published, professing to give its composition. The three forms below show how ignorant we really are on this point. The first is given as Dr. Ogden's form in the Pharm. Journ., vol. 1861-2; the second was given to me by a large manufacturing chemist as the composition of what is largely supplied to the profession under the name of Chlorodyne, but without calling it by anybody's name; and the third is published by Squire in his 'Companion to the Ph. Br.,' under the title of Tinet. Chloroformi Comp., and "it has been represented to him as the composition of the popular medicine called Chlorodyne." The quantities are described in ounces and drachms in the different publications referred to; but

they are here reduced to their nearest simple proportionate quantities in order that the practitioner may compare them with greater ease. The first two forms resemble each other to a considerable extent, except that ether and spirit in one take the place of chloric Ether in the other; but the formula published by Mr. Squire differs so widely from them both that it is impossible to reconcile the discrepancy. It is indeed difficult to imagine that the small proportion of active medicines contained in his form can produce a compound so pungent and potent as Chlorodyne is generally found to be.

	<i>Dr. Ogden.</i>	<i>Unnamed.</i>	<i>Squire.</i>
Chloroform	$\frac{6}{10}$	$\frac{4}{10}$	$\frac{1}{8}$
Chloric Ether	$\frac{1}{10}$	abs.	abs.
Tinct. Cannabis Ind.	$\frac{1}{10}$	$\frac{1}{3}$	abs.
Tinct. Capsici	$\frac{1}{10}$	$\frac{2}{10}$	abs.
Ol. Menthæ Pip.	$\frac{1}{100}$	$\frac{1}{20}$	$\frac{1}{100}$ nearly.
Morphiæ Muriatis ...gr. $\frac{1}{8}$ in ℥ xv.....	gr. $\frac{1}{8}$ in ℥ xv.....	gr. $\frac{1}{8}$ in ℥ xvi.....	gr. $\frac{1}{8}$ in ℥ vi
Acid. Hydrocyanic. Dil.	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{17}$
Acid. Perchloric.	used for combining with the		
	Morphia		abs.
Treacle	$\frac{5}{10}$	$\frac{1}{2}$	
	Ether	$\frac{1}{10}$	abs.
	Spirit	$\frac{1}{10}$	$\frac{1}{8}$
		Ext. Glycyrr....	$\frac{1}{13}$
		Syrup	$\frac{1}{2}$

***CHROMIC ACID** (not officinal in the Ph. Br.).
 —This acid has lately been used for the removal of syphilitic warts, and is highly spoken of by practical surgeons. It is applied to the warts by means of a camel's-hair pencil, or a stick covered with lint. It causes acute pain for a short time, but does not produce a slough, nor does it occasion a sore if it happens to run beyond the warty surface. The warts wither and disappear, and more than two applications are seldom necessary.

Chromic Acid forms needle-shaped crystals of a very deep red colour. They are extremely deliquescent, and dissolve spontaneously in five or six hours, if freely exposed to the air. The solution has a very deep red colour; and constitutes the acid for medicinal use. They are also soluble in alcohol, but the solution is accompanied by decomposition of the spirit, and almost explosive violence of chemical action. The crystallized acid is obtained by adding strong Sulphuric Acid to a cold saturated solution of Bichromate of Potash; the mixture becomes hot, Sulphate of Potash is formed, and Chromic Acid is set free, which crystallizes on cooling.

Dose.—Chromic Acid is not used internally. Care must be taken in applying it, not to allow it to run upon the sound skin.

CINCHONINE, etc. See Chinchonine, etc., p. 64.

COLLODIUM, or COLLODION, is now in the Ph. Br., and as one of its most important applications is for the cure of Erysipelas, a few remarks on the rationale of its efficacy may not be out of place. This disease is treated by a great variety of methods having little apparent resemblance, some being constitutional and some local. But on examination they will all be found to have the same ultimate effect, viz. constriction of the enlarged and congested cutaneous capillaries. This is effected sometimes by mechanical compression, and at others by an astringent introduced into the circulation; and the advantage of one method over another will be found to depend chiefly upon the situation of the Erysipelas. Free painting of the whole surface by Collodion alone, or by Collodion diluted with Castor Oil; constant applications of a saturated solution of Sulphate of Iron; Lead lotions; the firm application of a bandage soaked in hot water

and kept wet, over the entire of an erysipelatous limb; and the application of blue ointment,—are the favourite and most efficacious forms of local treatment; whilst the free internal administration of thirty-minim doses of Tinct. Ferri Mur. every three hours is frequently combined with them all. It is unnecessary to speak of the astringent effect of the Tinctura Ferri upon the capillary circulation; and the rapid abatement of the redness and swelling of an erysipelatous surface after a short application of mercurial ointment is, no doubt, due to the absorption of the mercurial, and its local action upon the capillaries. The contraction of Collodion as it dries exerts a powerful pressure upon the congested and swollen capillaries, and they are mechanically emptied and afterwards supported by this agent, until they have regained their healthy size. A saturated solution of Sulphate of Iron acts in a similar manner, as any one may feel by applying it to the back of his own hand in health; but the effect is less powerful; and that of a lead lotion is still less effective. But of all the means by which the pain and swelling may be removed from an extremity affected with Erysipelas, none is equal, in my experience, to the firm application of a bandage soaked in hot water, and kept wet and warm by being covered by some waterproof material. The bandage is scarcely applied before the pain is relieved, and in a few hours the bandage is generally loose, from the abatement of the swelling.

These remedies are not, however, equally convenient or applicable. Shoulders can scarcely be firmly bandaged, though the arm can; but Sulphate of Iron or Collodion may easily be applied. The one, however, iron-moulds the bed-clothes and linen, and the other is expensive. The face is frequently so tender as

scarcely to bear the Collodion ; and in the neighbourhood of the eye there would be danger of its running into this organ ; but mercurial ointment may be spread even upon an erysipelatous eyelid without harm.

A consideration of these circumstances will suffice to guide the selection of the particular astringent ; and it is only necessary to add, that whilst undiluted Collodion must be used in such a case as that of a scrotum pendulous from varicocele, it is better to mix the Collodion with one or two parts of Castor Oil, before applying it extensively over an erysipelatous surface. This combination forms a compound which is soft and elastic, and does not give pain when applied even to the face. Olive Oil cannot be substituted for Castor Oil, as it is not soluble in spirit, and therefore does not mix with the Collodion. Castor Oil, on the contrary, is soluble, and readily mixes, and the mixture has not the offensive odour of unmixed Castor Oil.

It is necessary to observe that the kind of Gun Cotton, or Pyroxylin, ordered by the Pharmacopœia, is not a good one for making Collodion. (See PYROXYLIN.)

CONII FRUCTUS TINCTURA.—The alleged uncertainty and feebleness of Tincture of Conium made from the leaves, has led to the introduction of this preparation made from the fruit, or, as it is often called, the “seeds” of Hemlock. We are so much in the habit of speaking of caraway seeds, fennel seeds, and the like, that it requires an effort to think of them as fruits. The so-called seed is however in reality a very small fruit, which consists of a hard shell marked by ridges, enclosing the seed. On cutting this shell in two the seed is found inside it, and

there are generally small holes in the walls of the shell, which contain the aromatic oil in such of these fruits as are fragrant. Conium fruit has no odour, and the shell is destitute of these little holes or "vittæ" for containing oil. The active principles of many medicines are more concentrated in the seeds than in the other parts of the plant, *e.g.* Colehieum and Cardamom; and the tincture of the Conium fruit has been thought likely to be more uniform and trustworthy in its effects than that of the leaves. Dr. Garrod's experiments tend to confirm this expectation, and to show that this new tincture is considerably stronger than the old one,—probably about half as strong again, or even more. *Dose*, mxx to mxxx.

CUSO.—This substance has been used for several years under the name of Kouso. It consists of the clusters of flowers growing upon a forest tree in Abyssinia, which is called the *Brayera anthelmintica*.

Description.—The cluster of flowers resembles a faded cluster of common lilac blossoms more than anything with which we are familiar; but the separate flowers have a pale reddish-brown or rose colour rather than a lilac tinge. The separate flowers, picked from the stalks, are the part used in medicine.

Medicinal Properties.—Cusso is undoubtedly a very valuable remedy in cases of tape-worm, if sufficient of the substance is used. It causes nausea, and sometimes vomiting, but its operation is generally safe, easy, and certain, and the worm is expelled in twelve hours. It is generally necessary to give a purgative about six hours after the Cusso has been taken.

Dose and Description.—The Ph. Br. contains an infusion which is made of a quarter of an ounce of Cusso. This dose is however much below what is generally requisite, as half an ounce and even an ounce

is frequently necessary. It is generally given by stirring up the flowers in water, and the patient swallows the dose as best he may.

DIGITALINUM.—The active principle of *Digitalis*. It is an uncrystallizable light-brown powdery resinoid substance, seldom, if ever, white. It is said that the proportion of this principle present in *Digitalis* varies very much in different seasons, which is supposed to account for the varying effects of this drug; and the Digitalinum is introduced to furnish a less uncertain remedy. Dr. Christison has published some remarks in its favour, and it has been largely used by Dr. Walshe to allay the palpitations in Phthisis.

Dose, gr. $\frac{1}{100}$ to gr. $\frac{1}{50}$. The Latinized name Digitalinum is not open to any mistake; but the English word "Digitalin," used in the Ph. Br. for translating it, is unfortunately fallacious, owing to the discovery in *Digitalis* of three principles, one of which has been called in France Digitalin, and is inert. Another is called Digitalose, and is also inert; whilst the third has been called Digitaline, and is the active one.

Dose, gr. $\frac{1}{100}$ to gr. $\frac{1}{50}$ or gr. $\frac{1}{25}$.

EXTRACTUM CINCHONÆ FLAVÆ LIQUIDUM.—This preparation is made by macerating coarsely-powdered Yellow Bark in cold water for twenty-four hours, and then percolating additional water through it until the bark is exhausted. The liquor is afterwards evaporated at a temperature of 160° F. until the sp. gr. is 1.2. When the liquor is cold it is to be mixed with one-third its bulk of rectified spirit; the sp. gr. should be about 1.1. This solution contains such constituents of the bark as are soluble in cold water, which are chiefly Tannate and Kinate of Quinine and colouring-matter. According to the proportion of bark which is ordered, each fluid

drachm of the extract should contain half an ounce of bark; but the water does not, in reality, nearly exhaust the bark of its Quinine, however long the cold percolation may be continued. The preparation is therefore much stronger in name than in reality; but although in one sense it is a wasteful preparation, it is an elegant and useful form for administering Cinchona.

Dose, from $\mathfrak{m}\mathfrak{x}\mathfrak{v}$ to $\mathfrak{f}\mathfrak{z}\mathfrak{i}$, which nominally contains from $\mathfrak{z}\mathfrak{i}$ to oz. ss of Cinchona Bark.

EXTRACTUM ERGOTÆ LIQUIDUM.

Take of Ergot, in coarse powder, lb. i.

Ether Oi.

Distilled Water Oiiiss.

Rect. Spirit fl. oz. viii.

Shake the Ether in a bottle with half a pint of the water, and after separation decant the Ether. Place the Ergot in a percolator, and free it from its oil by passing the washed Ether through it. Remove the marc, and digest it in 3 pints of the water at 160° F. for twelve hours. Press out, strain, and evaporate the liquor to fl. oz. ix, and when cold add the Spirit. Allow it to stand for an hour to coagulate, and then filter; the product should measure fl. oz. xvi.

Description of Process.—Ether often contains a little spirit, which is dissolved and retained by the water, whilst most of the Ether itself separates from the water and rises to the surface. This washed Ether dissolves the oil contained in the Ergot, which possesses no medicinal properties and is thrown away. The Ergotin, and medicinal constituents of the Ergot are soluble in water, which dissolves them in the course of twelve hours; but it also dissolves some vegetable albumen, which would prevent the liquid from keeping. By the addition of spirit this albu-

men is coagulated, and is then separated by filtration. The excess of spirit which has been added is sufficient to make a good keeping liquid, the "Liquid Extract of Ergot."

Dose.—16 oz. of Ergot are ordered to make 16 fluid ounces of extract. Each fluid drachm therefore contains 1 drachm of Ergot. The dose will depend upon the object in view. For expediting the progress of labour, many practitioners give 1 or 2 drachms of Ergot, and they will employ the same dose of the liquid extract. If, however, they were to try half-drachm doses, they would find, in a large proportion of cases, that they were sufficient. For continued employment in cases connected with disorder of the spinal system, *mxv* should be given two or three times a day.

EXTRACTUM FILICIS LIQUIDUM (an Ethereal Extract).—The Pharmacopœial name for Oil of Male Fern. This preparation ought to have the appearance of a mixture of dark-green and brown, treacly-looking substances. If it is so fluid as to shake up readily in the bottle, or it is of one uniform colour throughout, its quality is very doubtful. I have seen frequent failures from a uniform dark-brown extract, where the mixed green and brown has answered. It is an ethereal extract of Fern roots, and ought therefore to contain both the green and brown colouring-matter.

The following directions for the method of employing it are so practically valuable as to deserve note.* The patient is first to take a full dose of Castor Oil, and then for twenty-four hours to take nothing but slops, *e.g.* beef-tea, etc.—no solid food at all. The

* Dr. Rendle, Med. Off. Government. Conv. Pris. Brixton. (Brit. Med. Journ., April, 1864, p. 390.)

following day the purgative is to be repeated, and in twelve hours a full dose, *i.e.* f ʒii, of the fluid extract of Male Fern is to be taken. It then acts with great rapidity, and more than usual certainty. By this means the whole intestinal canal is free from both alimentary and feculent matter, and the medicine exerts its full poisonous effect upon the tape-worm.

Dose. The general dose is from f ʒss to f ʒi, shaken up with gum-water. In the above directions a much larger dose than the usual one, (*viz.* f ʒii) is recommended.

FEL BOVINUM PURIFICATUM.—Ox Gall is directed to be purified by adding two parts of Rectified Spirit to one of the gall, and setting aside until the sediment has settled. The mixture is then to be evaporated to a proper consistence. The purified extract thus obtained has a dark, almost black colour, and an unpleasant odour. It is used as an ingredient in digestive and purgative pills; and I have a favourable opinion of its value in cases of sluggish bowels arising from general want of digestive power, and accompanied by great flatulence. As, however, I almost always combine it with Extract of Nux Vomica, and Rhubarb or Assafœtida, it is not easy to feel certain how much of the good effect obtained is due to the Ox Gall.

Dose, gr. ii in such a combination as above mentioned two or three times a day for a week at a time.

FERRI ARSENIAS is in the form of a green powder, insoluble in water, but soluble in Hydrochloric acid. It is obtained by adding a solution of Sulphate of Iron to a mixed solution of Arseniate and Acetate of Soda, when an insoluble Arseniate of Iron is precipitated, and Sulphate of Soda remains in solution. *Composition,* $3 \text{FeO} + \text{AsO}_5$.

Medicinal Uses.—Arseniate of Iron is used in the cases in which Arsenic is generally employed, viz. in chronic scaly cutaneous diseases and cancer, and the iron is supposed to render it additionally useful. *Dose*, gr. $\frac{1}{24}$ carefully increased to gr. $\frac{1}{8}$.

Preparation :—

Take of Sulphate of Iron oz. ix.

Arseniate of Soda oz. iv.

Acetate of Soda oz. iii.

Boiling Distilled Water, sufficient.

Proceed according to the directions for making Phosphate of Iron (next article in this analysis).

Explanation.—The theory of this process is precisely similar to the one explained in the following article on Phosphate of Iron. It is only necessary to substitute the words “Arsenic Acid,” for “Phosphoric Acid” and “Arseniate” for “Phosphate” whenever they occur.

FERRI PHOSPHAS.—A slate-blue powder, insoluble in water. Its *characteristic effect* as an iron tonic is that it is less liable to confine the bowels than the preparations of iron generally; but the powder is not so good a form as the syrup for its administration, owing to its insolubility. *Dose*, gr. iii to gr. vi.

Preparation :—

Take of Sulphate of Iron oz. iii.

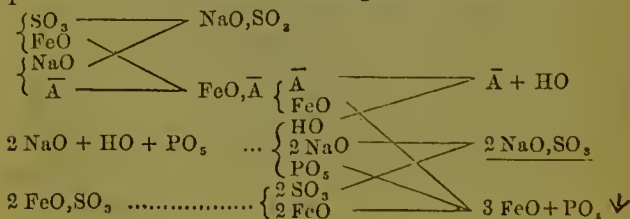
Phosphate of Soda, oz. iiss.

Acetate of Soda oz. i.

Boiling distilled water Oiv.

Dissolve the Sulphate of Iron in one half, and the Phosphate and Acetate of Soda in the other half of the water. Mix all together, and after careful stirring transfer the precipitate to a calico filter, and wash it with hot distilled water till the washings cease to precipitate Chloride of Barium. Dry on porous bricks at a heat of 100° F.

Explanation.—The theory of this process is rather complicated. Phosphoric Acid has a strong tendency to combine with 3 eqs. of a base, instead of 1 eq., and to form what are called “Tribasic Salts,” of which Phosphate of Iron is an example; for it contains 3 eqs. of Iron, and only 1 eq. of Phosph. Acid, *i.e.* $3 \text{ FeO} + \text{PO}_5$. If however from any circumstance it cannot obtain 3 eqs. of a metallic Oxide, it contents itself with something less noble, viz. water; but it still has 3 eqs. essentially present. Thus in the Phosphate of Soda above, there are only 2 eqs. of Soda, but 1 eq. of water takes the place of the third eq. of Soda, and the salt consists of $2 \text{ NaO} + \text{HO} + \text{PO}_5$. This water cannot be removed without destroying the substance, and is called Basic Water; but there are several additional equivalents (24) of water in the crystals of Phosphate of Soda, which can easily be separated by mere drying. The 1 eq. of basic water is essential to the constitution of the salt; the 24 eqs. of water of crystallization are, so to speak, accidental. Now the object of the process given above is to make 3 eqs. of Oxide of Iron take the place of the 2 eqs. of Soda and 1 eq. of water; but Phosphoric Acid does not readily supersede so strong an acid as Sulphuric Acid; and the Acetate of Soda is therefore employed to convert part of the Sulphate of Iron into Acetate, which the Phosphate of Soda is able to decompose, as is shown below.



In the first part of this diagram, the Sulphate of Iron and the Acetate of Soda form Sulphate of Soda and Acetate of Iron. The 1 eq. of Phosphoric Acid then combines with the 1 eq. of Oxide of Iron from the Acetate, and the 2 eqs. of Oxide of Iron from the Sulphate, and forms the insoluble tribasic compound called Phosphate of Iron. The 1 eq. of basic water in the Phosphate of Soda combines with the Acetic Acid from the Acetate of Iron and remains in solution, and the 2 eqs. of Soda from the Phosphate combine with 2 eqs. of Sulphuric Acid from the Sulphate of Iron, and form Sulphate of Soda, which also remains in solution.

Syrupus Ferri Phosphatis :—

Take of Granulated Sulphate of Iron gr. cccxiv.

Phosphate of Soda gr. ee.

Acetate of Soda gr. lxxiv.

Dilute Phosphoric Acid fl. oz. vss.

Refined Sugar oz. viii.

Distilled water fl. oz. viii.

Dissolve the salts, and proceed as in making Phosphate of Iron ; but instead of drying the precipitate, press it strongly between folds of bibulous paper, and add to it the dilute Phosphoric Acid. When the precipitate is dissolved, filter the solution, add the Sugar, and dissolve without heat. The product should measure fl. oz. xii.

Dose, each f ʒi contains gr. i of Phosphate of Iron.
Dose f ʒi to f ʒii.

For Medicinal Properties, see FERRI PHOSPHAS, above.

FOUSEL OIL, or FUSEL OIL,—Amylic Alcohol ; Oil of Potato Spirit ; Grain Oil ; or Hydrated Oxide of Amyle,—has been introduced into the new Pharmacopœia for the purpose of obtaining Valerianate of

Soda, not for the sake of being itself used in medicine. There is however one medicinal employment of it, which is deserving of notice. The oil is colourless, or *very* slightly coloured, and has a disagreeable odour, and a pungent acrid taste. Its sp. gr. is 0·812 to 0·818. When Grape Juice is fermented for the purpose of making wine or brandy, a peculiar fragrant volatile oil is produced, which gives the special flavour to the wine, and the agreeable taste to genuine Cognac Brandy. But when corn of any kind, or potatoes are fermented to make British Brandy or Potato Spirit, a peculiar acrid pungent oil is formed instead of the fragrant oil of wine; and it is found so difficult to separate it from the spirit by distillation, that a palate at all accustomed to discriminate flavours can scarcely be deceived. This pungent oil is the Fousel Oil of the Pharmacopœia.

Medicinal Properties.—Fousel Oil exerts a considerable and useful influence upon the cuticular surface, and is beneficially employed in some cases of deafness, dependent upon chronic thickening of the cuticular lining of the external meatus. The “Ear Drop” (see FORMULÆ) being introduced into the meatus by means of a camel’s-hair pencil, it frequently detaches the cuticle in layers which can be easily removed by means of a pair of slender forceps; and by continuing the application for some time, I have seen remarkable improvement. When Soap Liniment or Glycerine is substituted for the Fousel Oil, or the Tinet. Iodini Comp. is used alone, the detachment of the cuticle is not so rapid or complete. It is possible that a thickened cuticular surface elsewhere (*e.g.* Corns) may be beneficially treated in the same way, but I cannot speak of it from experience.

Dose (see FORMULÆ, “Ear Drops”).

***FUCUS VESICULOSUS** (not officinal in the Ph. Br.).—This seaweed has been proposed for medicinal use for the purpose of reducing obesity. Its effects are described as being a general feeling of greater lightness and elasticity of spirit, quicker digestion, and therefore increased desire for food, diminution of flatulence, and consequently reduced size and uneasiness of the abdomen. After two or three weeks' continued employment, there is increased secretion from the kidneys, with the appearance of a dark-coloured film on the surface of the urine, and at this date a gradual diminution of fat and general weight of the body sets in, and progresses steadily whilst the medicine is continued. The preparation chiefly employed is an Extract made by proof spirit from the Fuens pounded into a pulp. This extract attracts moisture, and is therefore given in pills, not in powder. It has no unpleasant taste. It may be taken between meals three times a day, and the usual diet need not be interfered with.

Dose of the Extract, gr. ii to gr. iv, in pills, three times a day for a month at least, and probably for two months, or more. Even a larger dose is said not to be injurious.

***HYDROCOTYLE ASIATICA, SYRUP OF** (not officinal in the Ph. Br.).—This medicine has been little used in this country, but it is advertised from France as having proved very useful both in that country and in India, from whence the plant is obtained. It is an Umbelliferous plant growing in wet marshy places, and we have one species in our own country, which goes by the name of White Rot, or Marsh-Pennywort,—the first name being given to it because it is supposed to produce rot in sheep which feed upon it. It is doubtful, however, whether it is the wet pasture,

or the Hydrocotyle, which really deserves the blame in this case. However that may be, the Asiatic species is said to be very useful in cases of Elephantiasis in India, and obstinate watery and leprous eruptions in France. An extract is made by exhausting the plant first by alcohol and then by water, and evaporating the mixed product, which is afterwards made into pills or syrup. I have no experience of the remedy except in the latter form, and it has proved decidedly useful in some very obstinate cases of eczematous eruptions in children. I have heard also that it has been beneficial in this neighbourhood in a case closely resembling Elephantiasis. The medicine is not unpalatable, and produces little sensible effect, except that the child's health improves, and the eruption disappears. The expense of the remedy is a great drawback to experiments on its effects, which, so far, appear to me to be useful.

Dose, a dessert-spoonful to a table-spoonful of the syrup three times a day, for children from three or four years old to eight or ten.

*HYPOPHOSPHITES (not officinal in the Ph. Br.).—This class of salts came into fashion in consequence of the high terms in which Hypophosphite of Lime was recommended by Dr. Churchill as a remedy in Phthisis; and although they have not realized all the expectations entertained of them, and have ceased to be in fashion, they retain a good place in the opinion of American physicians amongst remedies adapted to cases of nervous and general debility and ill-health. (Parrish, Pract. Pharmacy, 3rd ed. p. 399.)

*HYPOPHOSPHITE OF LIME, $\text{CaO}, 2\text{HO}, \text{PO} = 86$ (not officinal in the Ph. Br.), is the principal and most valuable of this class of medicines; and it is made by boiling Phosphorus in a deep open

vessel under a chimney, until all inflammable and offensive gases have ceased to escape. The solution is then filtered and evaporated to form crystals.

Take of Lime, recently burnt, 4 lbs.

Phosphorus 1 lb.

Water 5 gallons.

The lime is to be slaked with the water, and the mixture boiled. The Phosphorus is then added to the boiling liquid, and boiled with the frequent addition of water until the Phosphuretted Hydrogen ceases to escape; after which the solution is to be treated as above mentioned.

Explanation.—During the boiling some of the Phosphorus becomes oxidized by the water, and forms Hypophosphorons Acid (PO) whilst another portion combines with the Hydrogen of the water, and forms Phosphuretted Hydrogen which escapes. The acid combines with the lime and forms Hypophosphite of Lime ($\text{Ca O}, 2\text{H O}, \text{PO}$), which is dissolved, and subsequently crystallized.

Description.—Hypophosphite of Lime forms white flattened prismatic crystals, which have a pearly lustre. It is soluble in six parts of cold water, in which it may be conveniently administered with a little syrup.

Medicinal Employment.—Hypophosphite of Lime was first recommended for the treatment of Phthisis in which it was said to produce remarkable benefit; the patient improving in every respect under its use. It is not so much relied on at present, but it is still used as a tonic in cases of general nervous and constitutional debility and ill-health.

Dose, gr. iii to gr. xv two or three times a day.

Syrup of Hypophosphite of Lime (Procter's).—This form is in common use in America. It contains 28

grs. of the Hypophosphite in a fluid ounce, and is flavoured with Vanilla.

Dose, a teaspoonful (gr.iiiiss), to a tablespoon (gr.xiv).

Syrup of the Hypophosphites (Parrish's).—This is another well-known form in America, which contains Hypophosphite of Lime, gr. iii; ditto Soda, gr. i; ditto Potash, gr. i in a teaspoonful of Syrup flavoured with orange-flower water.

Dose, a teaspoonful.

HYPOSULPHITE OF SODA is in large transparent colourless crystals, and has a cooling saline taste. It has not been introduced in the body of the Pharmacopœia, and is not intended by the compilers of the Pharmacopœia for medicinal employment, though it has been given internally in doses of gr. xv, dissolved in water, three times a day, in the treatment of obstinate vomiting depending on the Sarcina Ventriculi. It has also been used as a lotion (ʒi in fl. oz. i) in cutaneous diseases, chiefly moist ones, or those consisting of a thick soft scab, like Porrigo Favosa. *Dose*, gr. xv. When used as a lotion, ʒi in fl. oz. i.

KAMELA.—This is a light powder of an orange-red colour, which is obtained from the outside of the capsules of the *Rottlera tinctoria*, an East Indian Euphorbiaceous plant. It is almost entirely soluble in Ether, which is the test for its purity. The undissolved portion consists of a few tufted hairs. It is so abundant in India as to be used for furnishing a red dye. The accounts of its efficacy as a remedy for tape-worms in India are very glowing; those from practitioners in England are less so, which may perhaps be owing to the difference of diet and habits in this country and in the East. It produces no unpleasant symptoms beyond a slight nausea and griping. It is only useful in cases of Tape Worm. The

dose for a strong man is $\mathfrak{z}\text{i}$ every three hours for three doses. It ought to be given on an empty stomach, at short, not long intervals, and if necessary, followed by a purgative.

Dose, $\mathfrak{z}\text{ss}$ three times for a delicate woman; $\mathfrak{z}\text{i}$ three times for a strong man. It does not mix readily with water, so it should be given in syrup or gruel.

***LARCH, TINCTURE OF** (not officinal in the Ph. Br.).—This medicine has been proposed for use in the cases in which the various turpentine have long been internally employed, viz. Chronic Bronchitis, Epistaxis, and Intestinal Hæmorrhage, occurring during fever, in Hæmoptysis, and Purpura Hæmorrhagica, and in Iritis, and in mucous discharges from the urino-genital system. It appears to have answered the expectations of those who have employed it, and is less disagreeable to the palate than the medicines of this class generally. Its flavour is but slightly unpleasant, much less so than turpentine; and it is a decided gain if the palate can be consulted, without loss of remedial power at the same time. It is probable that in the less urgent cases in which the turpentine have been used, Tincture of Larch will continue to be employed with advantage in doses of $\mathfrak{f}\mathfrak{z}\text{ss}$ to $\mathfrak{f}\mathfrak{z}\text{ii}$. A volatile crystallizable principle has been lately discovered in Larch Bark to which the name of Larixinic Acid has been given. It is uncertain whether it possesses any special medicinal properties.

Extractum Laricis.—An extract of Larch Bark prepared by evaporating a watery infusion, has been used in the same cases, and with similar results to those obtained from the tincture. *Dose* of the extract, gr. ii to gr. v three or four times a day.

Tinctura Laricis.—Larch Bark oz. ii, Proof Spirit Oi. *Dose* of the tincture, $\mathfrak{f}\mathfrak{z}\text{ss}$ to $\mathfrak{f}\mathfrak{z}\text{ii}$.

LINIMENTUM CANTHARIDIS.

Cantharides, powdered, oz. viii.

Aeetic Acid fl. oz. iv.

Ether Oi.

Macerate the Cantharides in the Acid for twenty-four hours ; then place in a percolator, and allow the Ether to pass slowly through till fl. oz. xx are obtained.

This is an excellent preparation. A single application will sometimes raise a blister when it is painted upon the skin by a camel's-hair pencil, but it is safer to paint the surface three or four times, and the Ether evaporates so quickly that it can be done in a few minutes. If it is desirable to blister the scalp, the Liniment or the blistering application, whatever it may be, should be applied as soon as possible after the head is shaved ; the delay even of an hour or two makes a considerable difference in the rapidity with which the blister is produced.

LINIMENTUM IODI.

Iodine oz. $1\frac{1}{4}$.

Iodide of Potassium oz. ss.

Rect. Spirit fl. oz. v.

Dissolve the Iodine and Iodide of Potassium in the spirit.

This is an exceedingly strong solution of Iodine, and contains ten times as much Iodine as the Tinct. Iodini Comp., Ph. L. It gives most acute pain for fifteen or twenty minutes after it is applied, and not unfrequently raises a blister.

LIQUOR CALCIS SACCHARATUS.—This is a valuable addition in the Ph. Br. Simple water dissolves very little Lime (less than a grain to the ounce), constituting ordinary Lime-water ; but if the lime is first mixed with sugar it becomes soluble in much

larger proportion. The following are the directions for making it :—

Take of Slaked Lime oz. i.

Powdered White Sugar oz. ii.

Distilled Water Oi.

Mix the Lime and Sugar by trituration in a mortar. Transfer the mixture to a bottle containing the water, and having closed this with a cork, shake it occasionally for a few hours. Finally separate the clear solution with a siphon, and keep it in a stoppered bottle.

Test.—Sp. gr. 1·052. fl.oz i contains gr. 7·11 of lime.

Description.—The Saccharated Solution of Lime is a colourless liquid, and has a harsh flavour resembling that of Lime-water. It is about twelve times as strong as ordinary Liquor Calcis, but is used in the same manner, by mixing it with a teacupful of milk and taking it as an article of diet.

Uses.—It is chiefly used to correct chronic vomiting, whether connected or not with organic disease. It is however especially valuable in the vomiting of pregnancy, and in cases unconnected with organic disease; although even in these it frequently relieves the vomiting for a time.

Dose, 15 drops to a dessert-spoonful, in a teacupful of milk, taken with dry toast at breakfast alone, or for the evening meal as well.

*LIQUOR CALCIS SULPHURATÆ. Not official in the Ph. Br.

Take of Recently Slaked Lime lb. i.

Sublimed Sulphur lb. ii.

Water, a gallon.

Stir them together by means of a wooden spatula, and boil them for an hour in an iron or glazed vessel, gradually adding water so as to keep up the original quantity. Let the liquid cool, and then pour off the

clear liquid, as far as possible, and filter the remainder through tow ; keep it excluded from the air.

Description and Process.—When the above materials are boiled together, the lime and sulphur combine and dissolve in large quantity, forming a deep yellow or brown solution, having an odour of sulphuretted hydrogen.

Medicinal Properties and Uses.—This solution is a very valuable application for the cure of Itch, being much cleaner and more effective than the old-fashioned Compound Sulphur Ointment, and at the same time less offensive. It is sometimes too irritating if the skin is tender, in which case it must be diluted with water to such a strength as the skin will bear. The patient should first be thoroughly cleansed by an ordinary bath, and this solution should then be freely applied over every part of the body to which the least suspicion attaches—and be allowed to dry on the skin. In some cases a single thorough application suffices to cure the disease, and in two or three days the patient may again be bathed. In general, however, it is necessary to apply it several times ; which may be done once or twice a day, or not so frequently, according to the severity of the case, and the tenderness of the skin. It produces a deep yellow stain, which disappears in a few days after the application has ceased to be used. An experience of many years in a large workhouse, has shown that the cases are generally cured in about half the time by means of this application, compared with the Compound Sulphur Ointment ; and the patients may be dressed instead of being kept in bed during the treatment.

LIQUOR FERRI PERCHLORIDI.

Iron Wire, oz. ii.

Acid Hydrochloric, fl. oz. x.

Acid Nitric, f ʒvi.

Water, fl. oz. vii.

Dilute the Hydrochloric Acid with fl. oz. v. of the water, and pour the mixture on the Iron Wire in successive portions, applying a gentle heat when the action becomes feeble, so that the whole of the metal may be dissolved. To the Nitric Acid add the remaining two ounces of water, and having poured the mixture into the solution of iron (heated to 180° F.), evaporate the whole until the bulk is reduced to fl. oz. x.

This solution is a very powerful styptic. It is only introduced into the Pharmacopœia for making the Tinct. Ferri Perchloridi, which is intended as a substitute for the old Tinct. Ferri Muriatis or Sesquichloridi. It makes a good tincture; but the colour is nearly black, and its appearance is totally different from that of the old-fashioned tincture.

LITHIÆ CARBONAS and CITRAS. — Both these substances are, generally, colourless powders, though they are capable of forming small crystals, and the Citrate is deliquescent, whilst the Carbonate is a dry powder. Their general action is similar to that of the alkalis and their vegetable salts, but they are thought to act more certainly as diuretics, and to be specially beneficial in Gout, as the Urate of Lithia is more soluble than any other of the urates. The equivalent of Lithia is so small (only 7), that it is theoretically about three times as powerful as Soda, and nearly six times as strong as Potash. The dose therefore is generally smaller than the usual ones for Potash and Soda, but large doses may be given with no injury to anything but the pocket, the substance being very expensive. In the case of some gouty patients, this is not always an ob-

jection. The Citrate is converted into the Bicarbonate, passing through the kidneys.

Lithia was until lately thought a rare substance; but it has been detected by spectrum analysis in many bodies. It is expected of containing it. It has been detected in mineral waters, in samples of Potash, in table ashes, and in the ash of blood. It therefore appears to be widely distributed, though still in very small quantities.

For medicinal purposes it is obtained by a complicated process from Petalite, a kind of mica called Lepidolite, found in Bohemia. From this latter source the Bicarbonate of Carbonate of Lithia are obtained in this country. The quantity of Lithia in the mineral waters has hitherto been very small. At the hot springs at Baden-Baden, viz. at the Murquelle springs, it has lately been detected in a large quantity, the former containing only one grain, and the latter above two quarters in a pint of the water. Since this discovery these two springs have

AND PREPARATIONS.

bonate of Lithia according to the strength. The proportions which are generally in use are 10 grains and 5 grains in each bottle, combined with Bicarbonate of Potash or Phosphate of Ammonia.

Dose of the Citrate, gr. v to gr. xv, or more of the Carbonate, gr. iii to gr. vi.

***MAGNESIA, FLUID** (not officinal in L.—This liquid consists of Carbonate of Magnesia in solution by a large excess of Carbonic Acid. According to Pereira, Dinneford's Fluid Magnesia contains about gr. xvii of Carbonate of Magnesia in fl. oz. i. It is a palatable and valuable medicine.

Dose, from fl. oz. ss., containing gr. viii of Carb., to fl. oz. i. which contains gr. xvii.

***MERCURIAL CIGARETTES** (not official in the Ph. Br.).—These Cigarettes furnish an excellent and valuable mode of employing mercurial vapour in cases which are likely to be benefited by the local action of this remedy, but which are not easy of cure. Such parts are the Rima Glottidis, the Eustachian Tubes, the Frontal Sinuses, and the upper part of the Nasal Fossæ. In chronic loss of voice arising from ulceration or thickening of the Rima Glottidis.

ful of smoke passes through the larynx during inspiration, and again during expiration. Two or three mouthfuls of smoke should be used in this way two or three times a day. If the nose or frontal sinus is affected, the patient should blow the smoke out through his nose; and if the Eustachian tube is in fault, he should try to force it into his ears. A little management is requisite for accomplishing this. The patient should take the mouthful of smoke and close his mouth. He should then slightly distend the cheeks and at the same time swallow; at the moment of swallowing, the air or smoke from the mouth passes along the Eustachians, if they are pervious, and the patient feels his ears distended. The formula for making these cigarettes is the following:—

Take of—

Liquor Hydrargyri Nitratis Acid. m xv ,
Acid. Nitric. m x ,

Aqua f 5vi , or as much as will suffice to soak the paper, and mix them. If any precipitation takes place on diluting the mercurial solution, a gentle heat will redissolve it. Then soak a piece of brown paper or of thick white blotting-paper, 8 inches by 6, in the solution. Nearly dry the paper, and divide it into 8 or 12 slips, which should be rolled into cigarettes round a common lead pencil before they are perfectly dry, or the paper is apt to crack and break in folding. The free edge should then be gummed.

Dose, half a cigarette, or a whole one may be smoked twice a day, for any of the purposes mentioned above.

*PEPSIN, or PEPSINE (not officinal in the Ph. Br.).—This substance is obtained from the rennet stomach of the sheep or calf, which yields it very abundantly, by a somewhat complicated process. The

rennet bag is carefully washed to remove all adhering food, and the mucous membrane containing the gastric juice in its secreting tubes is scraped off with a knife, and then bruised in a mortar, and digested for twelve hours in distilled water. The liquid is then filtered, and Acetate of Lead is added to precipitate the Peptic Acid in the form of Peptate of Lead. This precipitate is decomposed by Sulphuretted Hydrogen, which separates the lead, and leaves the Pepsine in solution. The liquid as thus obtained is neutral, but it must be acid in order to accomplish digestion, and therefore Lactic Acid is added, until the liquid is as acid as the gastric juice obtained from the stomach of a living dog by means of a fistulous opening. The acid liquid is now evaporated to a syrupy consistence, and dried starch is added in such proportion that when it is evaporated to dryness, 15 grains are able to digest completely a drachm of dried fibrine. If the liquid is evaporated without the addition of the starch, it forms a damp gummy mass, which attracts moisture, and is unfit for sale or use.

The powdery substance obtained by the above process is the Pepsine of M. Boudault, which is the kind most commonly used in medicine. It is a pale fawn-coloured powder, slightly cohering together, and possessing a peculiar taste and slight odour. It reddens moistened litmus-paper decidedly, and does digest four times its weight of dried fibrine, which is the best test of its genuineness. Gastric juice contains about $1\frac{1}{4}$ per cent. of Pepsine and a variable quantity of salts, which are generally under 2 per cent. It contains also a little free acid, and about 97 per cent. of water. It must be acid in order to effect the digestion of food, and hence the necessity for adding the Lactic Acid above mentioned.

Dose and Administration.—Pepsine itself is given in doses of 15 grains, which may be taken in the first portion of food at dinner, or may be eaten between two pieces of bread and butter. For infants a month old or under, the dose should be a single grain. Of the Pepsine Wine the dose is a dessert-spoonful or a table-spoonful taken during a meal. For a fuller account, see Pharm. Journ. for 1862-63, p. 472.

*PEPSINE WINE (also not officinal in the Ph. Br.).—Various formulæ have been given for the preparation of this liquid, but they differ widely from one another, and none has received such general assent as to stand clearly in the first rank. It may be conveniently and easily made at any time by using the dried rennet-bag, which can be obtained from a dairyman or butcher. A quarter of this should be cut into small pieces and put into a bottle of sound sherry wine, and shaken up frequently for a week. The wine may then be filtered through linen or coarse filtering-paper, and used medicinally.

Medicinal Properties.—Both Pepsine and Pepsine Wine have considerable testimony in favour of their value as assistants in cases of weak digestion, and my own experience of Pepsine Wine, prepared as above described, and used in several cases, is confirmatory of their utility. The cases most benefited appear to be those of persons whose digestion has been impaired by the over-use of stimulants, either with or without an insufficient quantity of nutritive food. In these cases the flatulence has diminished, as well as the heartburn, and indisposition to take proper food. Favourable testimony has also been borne to the value of Pepsine in the case of infants weakly from their birth, who can scarcely take the mother's milk, or digest it when taken.

Dose, fʒii to fl. oz. ss. taken during a meal.

*PEROXIDE OF HYDROGEN (not officinal in the Ph. Br.) has been brought prominently before the profession by the experiments of Dr. Richardson, whose results show it to be an agent of considerable power in cases of imperfect respiration and strumous disease. Glandular swellings disappeared as if treated by iodine, and the difficulty of breathing was very much relieved in Phthisis and Chronic Bronchitis, and in Pulmonary Congestion arising from valvular disease of the heart. It assists the stomach to retain Cod Liver Oil, and promotes digestion in mesenteric disease. In Hooping Cough it is said to have been remarkably useful. In Diabetes, and diseases of the nervous system, it appears to have done little or no good.

Peroxide of Hydrogen may be obtained by adding the Binoxide of Barium, BaO_2 , to water acidulated by Hydrochloric Acid, HCl . The Cl combines with the Ba , and the O_2 combines with the H , forming the Peroxide of Hydrogen, both of the compounds remaining dissolved in the water. The Barium is then removed by Sulphuric Acid, which forms insoluble Sulphate of Barytes, and sets Hydrochloric Acid free again. Fresh Binoxide of Barium is added, and the above operations are repeated until the water contains about ten times its volume of Oxygen, in the form of HO_2 . The Sulphuric Acid is lastly removed by the addition of free Caustic Baryta. Another simpler method has been proposed, viz. to pass a constant powerful stream of Carbonic Acid Gas through water. Very finely powdered Binoxide of Barium is then gradually dropped into the water, which dissolves it. As soon as it is dissolved the Carbonic Acid converts the BaO_2 into BaO, CO_2 , insoluble Carbonate of

Barytes, setting one equivalent of Oxygen free. This does not however escape as a gas, but combines with some of the water, HO , forming HO_2 , which remains dissolved. The operation is continued as before until the water contains about ten times its volume of Oxygen, which Dr. Richardson finds to be the most convenient strength for use.

Peroxide of Hydrogen of this strength is a colourless liquid, which has an aerid caustic taste, and gives pain when applied to a tender mucous surface. It is readily decomposed by heat, the second equivalent of Oxygen escaping at a temperature a little above 50°F . It must therefore be kept in a cold place.

Dose.—fʒi to fl. oz. ss, diluted with several times its bulk of water to suit the palate of the patient.

PHYSALIS ALKEKENGII (Winter Cherry). Not officinal in Ph. Br.—This plant, of the natural order Solanaceæ, which yields so many powerful narcoties, has not been much used in ordinary medical practice; but it has lately acquired considerable reputation for its effects in Chronic Gout. The entire unripe flower, (calyx and seed-vessels, but without the seeds) is dried and powdered, and afterwards moistened with water and acted upon by a little slaked lime, and is subsequently digested several times in boiling alcohol. The solution when evaporated yields an extract to which the name of *Alkekengine* has been given, though there are not experiments to prove that it is a specific alkaline principle. This extract is mixed with an equal part of a strong solution of Silicate of Soda, and any simple vegetable powder that will make it into a mass suitable for pills.

Medicinal Properties and Uses.—The pills above described have been introduced into practice from France under the name of “Laville’s Gout Pills;” and

the testimony of acquaintances and of patients is very strong in favour of their beneficial effects. One, two, or three pills a day in mild cases, and two or three times this number in more severe ones, have been followed by decided benefit in so many cases as to leave little doubt that the improvement has been a consequence and not a mere sequence, although they do not produce any marked and immediate action upon the skin, stomach, or bowels. There is neither perspiration, nausea, nor purging. They must be continued for several weeks in chronic cases; and the effect is the diminution of frequency and severity of the attacks, and the gradual abatement of the gouty swellings and stiffness of the joints. In acute cases, the pills are to be preceded by a mixture containing an alcoholic preparation of Chinchona and Colocynth, for making of which directions are given in Laville's pamphlet on the subject.

Dose.—The dose of the so-called Alkekengine is from 2 to 10 grains twice or three times a day, at the commencement of a meal,—and it should be continued in the smaller dose for several weeks together, or for some length of time after the usual duration of the attack has terminated.

PODOPHYLLI RESINA is now the Pharmacopœial name for the resinous powder which has been lately brought into use under the name of Podophyllin. It is obtained from the root of the *Podophyllum peltatum*, by the action of rectified spirit percolated through it, which dissolves the resin and some colouring-matter. The alcoholic solution is then evaporated to the consistence of treacle, and slowly poured into water very slightly acidulated with Muriatic Acid. In twenty-four hours the resin has separated from the solution, and after being washed in distilled

water and dried, it constitutes the Podophyllin of commerce, or the Podophylli Resina of the new Pharmacopœia.

It varies in colour from a pale greenish-brown to a dark brown; but the lighter-coloured resin is the most pure. It is seldom entirely soluble in alcohol or ether, but it ought to be almost entirely dissolved.

The purgative properties of Podophyllin resin have been well established by extensive experience. It causes the evacuation of bilious stools, and in many gouty or free-living patients relieves the symptoms commonly attributed to a congested and sluggish liver. It is an efficient purgative when the proper dose for the special patient has been discovered; but it is variable in its effects upon different constitutions, a sixth of a grain acting gently and sufficiently in some cases, whilst others require half a grain or more. It is seldom that a grain dose is requisite, and even half a grain acts violently in some patients. From the character of the motions it produces, it has been styled "Vegetable Mercury." It acts more favourably when combined with a small dose of some other purgative, such as Rhubarb or Aloes, and as far as I have observed, it is not liable to be followed by constipation, which renders it a useful ingredient in an "Antibilious Pill" for persons who are not content without this kind of medicine on their toilet table.

Dose, gr. $\frac{1}{4}$ to gr. ss as a mild aperient, gr. ss to gr. i or gr. ii as a drastic cathartic. The griping sometimes occasioned is prevented by Hyoseyamns.

PODOPHYLLUM ROOT is only used in medicine for yielding the resin (see above). It is in pieces about as thick as the stem of a tobacco pipe, and several inches long. It has a sweetish smell, but a bitter nauseous taste when chewed.

POTASSÆ CITRAS is a very mild alkaline laxative and diuretic, with little flavour. There is no very obvious reason for its introduction into the Pharmacopœia, as it is constantly and more agreeably given in the form of effervescing draughts of Bicarbonate of Potash and Lemon Juice, or Citric Acid. *Dose*, $\mathfrak{z}\text{i}$ frequently repeated.

POTASSÆ PERMANGANATIS LIQUOR.—A solution of Permanganate of Potash in water (gr. iv in fl. oz. i). An officinal form of Condyl's Disinfecting Liquid. The theory of this substance and its practical characters are very curious. When carefully prepared, the Permanganate of Potash is in slender crystals of a dark purple colour, and soluble in water, to which they impart their purple hue. In a weak solution this colour is more nearly pink than purple. When the substance is prepared with less care, on the wholesale scale, it is sometimes purple, sometimes pink, and sometimes green, which arises from the following circumstance:—Manganese is capable of combining with Oxygen in several proportions. MnO_2 forms the well-known black oxide; MnO_3 forms an acid called Manganic Acid, and this, when combined with Potash, forms green crystals, soluble in water. It is, however, capable of combining with a larger proportion still, viz. Mn_2O_7 , and forming Permanganic Acid, which, when combined with Potash, forms the rich purple crystals or solution of Permanganate of Potash. When prepared then on a large rough scale, this substance is liable to be a variable mixture of Permanganate of Potash, forming a purple or pink solution, and Manganiate, forming a green one; and the mixture in varying proportions of these two ingredients, occasions the variety in colour which is often observed in Condyl's Disinfecting Liquid.

The principal point of interest and practical importance in this preparation is, however, the seventh, or even the last three equivalents of Oxygen, which are frequently described as being in the state of Ozone; and the preparation is said to owe its special disinfecting properties to this Ozone. This remarkable substance, discovered by Schönbein, may be prepared in two ways; either by subjecting atmospheric air to a succession of electric sparks, or to the action of sticks of Phosphorus half covered with water. It has never been isolated, being always mixed with an excess of common air or Oxygen, and it appears to be merely Oxygen with its ordinary powers extremely intensified. Its formation and action may be illustrated as follows:—When a magnet is brought near a piece of soft iron, or a current of electricity circulates round it, the iron gains powers which it did not previously possess, and retains them whilst under the influence of the magnet; and sometimes even for a time after the magnet or electric current is removed. It appears, therefore, that a force such as magnetism or electricity is able to excite another body, so as to manifest powers not previously observed in it. Now it is a general law of chemical union that bodies possessing opposite electric forces combine readily, whilst those which exhibit little electric force, or are of the same kind, combine feebly or not at all. Hence Oxygen, which is negative, combines readily with Hydrogen and with metals, which are positive; whilst it combines with difficulty with Chlorine, which is negative like itself; and even when combined, easily separates. Now if the negative character of Oxygen could be exalted, its combining energy would probably be increased, and there are two ways in which this may be done. If it is subjected to a powerful current of elec-

tricity, its powers are extremely intensified, and it is called Ozone, which is frequently written as O, with a negative mark in the middle, to show its extra negative character. But Phosphorus is a powerful positive substance, and the intensity of its combination with Oxygen when they are heated together is well known. If, however, they are prevented from actually combining, though still brought in contact with each other, (as when sticks of Phosphorus are half covered with water in a large bottle of air,) the positive P, like the magnet, renders the negative O still more negative, and again Ozone is the result. Now the combining energy of this doubly negative Oxygen is much greater than that of the ordinary gas; and accordingly it combines with unusual rapidity with positive bodies like the Hydrogen, Phosphorus, Sulphur, and Carbon of organic substances. In short, it burns them up, though without flame. But these hydrogenous compounds, derived from animal decomposition, are highly offensive; and the Ozone accomplishes its beneficial work by converting them rapidly into inodorous water, and phosphoric, sulphuric, and carbonic acids. The foregoing remarks apply to Ozone artificially prepared, but it is produced in nature, on a scale in which it performs a most important part for the general welfare of animated beings. The principal source of atmospheric electricity appears to be the evaporation of salt-water by the heat of the sun; from which circumstance the tropics are the seat of thunder-storms of which we have no conception in the temperate zones; whilst thunder is a sound almost unknown in the Arctic regions. Under the influence of this electricity, part of the Oxygen of the air is constantly assuming the doubly negative state called Ozone, and is then drifted by the sea-

breezes over the neighbouring lands. Extensive observation has established that Ozone is most abundant when the wind is in a south-westerly direction; and that with an easterly wind it is very deficient, or almost absent. It is also more abundant on the south side of a house than on the north; and prepared papers exposed in these two situations readily exhibit this fact. This energetic Oxygen, then, passes over our large towns, and is often found in abundance on the sea side of the town, whilst it can scarcely be detected on the land side of it. It has met with decomposing organic matters and Hydrogen-compounds in the air, upon which it has expended its negative force; and has fulfilled the great task which appears to be its duty, of purifying the atmosphere from such compounds, and keeping it in a condition suitable for the wants of highly organized living beings, like those which inhabit the earth.

To return now to the Permanganate of Potash. Potash is a powerful positive body, and retains the Permanganic Acid with tolerable steadiness; but the acid itself is extremely unstable, and readily parts with three equivalents of Oxygen, by which the Mn_2O_7 is converted into MnO_2 , MnO_2 , and O_3 . Now these three equivalents of Oxygen exhibit extraordinary powers of union with organic matters; and as soon as the acid comes in contact with them it is decomposed: brown hydrated Peroxide of Manganese, $MnO_2.HO$, subsides, and the three of Oxygen liberated combine with the organic matter, and form inodorous and inoffensive substances. On this account these three equivalents of Oxygen have been considered as Ozone combined with Binoxide of Manganese; and in this way we may account for the remarkable deodorizing and disinfecting powers of the Permanganate of Potash.

When the theory is once perceived, and the substance is found to be practically useful in the case of ejecta from the body, we shall readily judge of its probable applicability to internal parts; and if properly diluted (gtt. i or gtt. ii of the solution in fʒi or fl. oz. ss of water) the Liq. Potassæ Permanganatis is of great value when taken internally, in cleansing a foul mouth when used as a gargle, and in correcting offensive evacuations, even before their expulsion, when it is swallowed. It also removes the smell and taste of tobacco smoke from the mouth. The flavour, if sufficiently diluted, is not objectionable to the patient, and its beneficial effects may be spoken of with confidence in the class of cases above indicated. I have found its internal employment, followed by marked benefit in some cases of Typhus, with the black furred tongue and offensive evacuations; but when the motions are not so offensive, I have not observed the same benefit. The purification of the contents of the bowels before their evacuation relieves the patient from at least one deadly depressing agent, viz. the sulphuretted hydrogen in the bowels, and the other gaseous products of decomposition and low vitality; and I attribute the benefit to this circumstance. I have also found the Permanganate of use in abating the distress from very offensive sputa in Phthisis. I have not seen any benefit from it in Diabetes.*

Dose, m̄x to m̄xxx, diluted with 1 or 2 ounces of water. This may be used *ad libitum* for rinsing the mouth, or it may be swallowed if the eructations or

* It is said to be useful when added to a hot-bath, in cases where the perspiration or other secretions from the skin are offensive. I have not had any experience of it in this respect.

motions are offensive. As a deodorant or disinfectant for a sick-room or cesspool, Condyl's Liquid will probably be preferred to the officinal Liquor Potassæ Permanganatis on account of the price. For a hot bath, half a tumblerful of the disinfecting fluid may be used at a time.

CONDY'S HEALTH POWDER (not off. in Ph. Br.) contains permanganate in the solid and dry form, and is beneficially used in cases of offensive uterine discharges. A tablespoonful of the powder mixed with three or four times the quantity of fine bran is to be folded in the pudendal napkin, which is to be applied in the ordinary way. I have seen great benefit from free injections into the uterus of a dilute solution of the permanganate of potash; and the powder may be used afterwards, or without the previous employment of the injection, according to the nature of the case.

POTASSÆ TARTRAS ACIDA.—This is the new name for what has long been known as Bitartrate of Potash, or Cream of Tartar. The reason for the change of name would appear to be a desire, by the compilers of the Ph. Br., to avoid chemical theories in the names employed. The new name is however connected with a theoretical consideration which requires notice. Tartaric Acid has a strong tendency to combine with two substances at the same time; for example, with Potash and Iron, forming the old Potassio-Tartrate of Iron, now called Ferrum Tartaratum; with Potash and Antimony, forming the old Potassio-Tartrate of Antimony or Tartar Emetic, now called Antimonium Tartaratum; with Potash and Soda, forming the Potassio-Tartrate of Soda. If, however, only one substance, such as Potash, is present, it still shows its characteristic tendency by combining with water, and converting it into a second base; and such

is the case in Cream of Tartar. It contains 2 eqs. of Tartaric Acid, \bar{T} , but only 1 eq. of Potash, and it was therefore called Bitartrate; but now it is assumed that it combines with 1 eq. of Potash and 1 eq. of water, and the compound might be named Tartrate of Potash and Water, or Tartrate of Water and Potash, with equal propriety. The compilers of the Pharmacopœia, indeed, appear to like the last the best, for they place water first in the symbol of the salt, viz. $HO + KO + C_8 H_4 O_{10}$, or Tart. Acid, \bar{T} . In connection with this subject it is necessary to remark, that they have adopted the symbol $C_8 H_4 O_{10}$ for Tartaric Acid, instead of half those numbers, viz. $C_4 H_2 O_5$, which used to be employed. What was formerly considered 2 eqs. of \bar{T} they now therefore call only 1 eq., and this change alters the symbol for another salt, viz. Tartrate of Potash, although the name has not been changed. This salt used formerly to be considered as composed of 1 eq. of Tartaric Acid, $C_4 H_2 O_5$, and 1 eq. of Potash; but now it is written in symbols by 1 eq. of Tart. Acid, $C_8 H_4 O_{10}$, and 2 eqs. of Potash. As the compilers of the Ph. Br. have reckoned the eq. of \bar{T} double of what it used to be, they have been obliged to reckon 2 eqs. of Potash instead of 1 in order to keep the proportions still the same. The 1 eq. of water in the Acid Tartrate of Potash is called "Basic Water," to show that it acts instead of another base, such as Potash or Iron, etc. See FERRI PHOSPHAS, p. 92.

POTASSII BROMIDUM.—This substance is in small, colourless, cubical crystals, very soluble in water, and also soluble in alcohol, but to a less extent. It has a pungent saline taste, which frequently remains for some time in the throat. It has been used

with varying reputation in chronic enlargements of the cervix uteri, and in Hysteria, dependent upon uterine derangement. It has also been employed in secondary syphilitic eruptions, but without establishing itself firmly in professional estimation. It has lately been brought prominently forward as possessing valuable powers in allaying spasmodic or convulsive affections, and cases of Epilepsy are reported to have been benefited by its employment. The effects in Epilepsy are at present (May, 1865) the subject of controversy between M. Moreau, of the Salpêtrière, and Dr. Williams, Superintendent of the General Lunatic Asylum, Northampton. M. Moreau treated fifteen of the most recent epileptic patients, between 14 and 19 years of age, with Bromide of Potassium for three months continuously. The dose for the first six weeks gradually rose from $\frac{1}{12}$ of a grain to 46 grains per day, and after the sixth week the last large dose was continued till the end of the three months. In several of the patients no apparent effect, good or bad, was observed; and in the remainder the fits became more numerous than before the treatment commenced. According to Dr. Williams's experience, the youngest and most recent cases are just those which generally derive the least benefit from this medicine, and 46 grains is far too large a quantity to be given daily. He took nineteen men and eighteen women for observation. For five months they took no medicine, and the men had 1012 fits and the women 1127. He then gave them from 5 to 10 grains twice a day for five months; and the men had 706 fits, or 306 less than before; the women had 970 fits, or 157 less than previously. (Brit. Med. Journ., April, 1865, pp. 413, 444.)

Dr. Hillier, Physician to the Children's Hospital,

Queen Anne Street, mentions two cases five and six years old, in which he gave from a drachm and a half to two drachms of Bromide in the twenty-four hours; and the fits gradually subsided in eight days, from 19 fits per day in one case, and 29 in the other, to none whatever; and the patients remained free as long as they continued under his observation, *i. e.* for some months. Dr. Sieveking says, "I believe it was more than a mere coincidence, that Bromide of Potassium arrested the disease" in some cases treated by himself. (*Brit. Med. Journ.*, April and May, 1865, pp. 413, 414, 451, 470.)

It is also said to have shown decided powers in checking the paroxysms of Hooping Cough. It has been used to lessen the irritability of the palate and uvula during the employment of the laryngoscope; and even of the conjunctiva, previous to attempting the removal of grains of gunpowder. It is spoken of by men deserving of confidence, and my own observation confirms their report, as having proved really useful in so-called cases of Spermatorrhœa; which frequently have no title whatever to be called spermatie affections, and are really simple cases of excessive secretion from the urethra and Cowper's glands, under the influence of sexual excitement. In such cases, and others in which the excitement is distressing to the patient, though unaccompanied by secretion, a decidedly sedative effect has been obtained by five-grain doses of this medicine three times a day. It has also been used beneficially in cases of irritable Gonorrhœa. In short, it is stated to possess extraordinary sedative powers upon the sensibility of mucous membranes generally.

Dose, according to the age of the patient, from gr. ii to gr. v three times a day. Much larger doses, even to

gr. xv or 3ss, have been recommended, but these large doses should only be given once; as, for example, when the laryngoscope is about to be used, or some operation to be performed on the throat. The advantage of giving repeated doses of 8 or 10 grains, instead of 5 or 6 grains, is very doubtful, and is not at all established by general experience.

PYROXYLIN, or GUN COTTON.

Take of Cotton oz. i.

Sulphuric Acid fl. oz. v.

Nitric Acid, sp. gr. 1.5, fl. oz. v.

Mix the acids in a porcelain mortar, immerse the cotton in the mixture, and stir it for three minutes with a glass rod, until it is thoroughly wetted by the acids. Transfer the cotton to a vessel containing water, stir it well with a glass rod, decant the liquid, pour warm water upon the mass, agitate again, and repeat the affusion, agitation, and decantation, until the washing ceases to give a precipitate with Chloride of Barium. Drain the product on filtering-paper, and dry in a water-bath.

Test.—Readily soluble in a mixture of Ether and Rectified Spirit.

Pyroxylin has been introduced into the Ph. B. for the purpose of making Collodion. It is stated however by Professor Redwood,* that the Nitric and Sulphuric Acids of the Pharmacopœia are too strong, as they form an excellent explosive Gun Cotton, but not a soluble one. To obtain a soluble cotton, the Acids should not be of the high specific gravity ordered in the Pharmacopœia, but should more nearly resemble the ordinary commercial acids. The Sulphuric Acid may be of the full Pharmacopœial strength, 1.846;

* Pharm. Journ. 1864, p. 416.

but the Nitric Acid should not be higher than about 1·45. The quantity of cotton ordered can seldom be soaked thoroughly by the mixed acids in so short a time as the three minutes prescribed for doing it, and it is better to use a smaller quantity.

SANTONINUM is the active principle of the Semen Contra, or flowering heads of an undetermined species of *Artemisia*. It is in flat colourless crystals, which become yellow when exposed to the sun's light, if only for a few hours. It is a valuable anthelmintic in the case of round worms alone. In tape and thread worms it is of no use. This special action probably arises from the absence of purgative properties, and from its chemical peculiarity of being soluble in alkalis, but not in acids. Hence it happens that it passes through the stomach unaffected, but is dissolved in the alkaline secretions present in the duodenum and upper part of the jejunum, which are the habitation of the round worms. Upon these it exerts a deadly effect, and I have seen large evacuations of these worms, after a single dose of 2 grains of Santonine. It never (so far as I can learn) causes the expulsion of tape-worms; and it has little or no purgative action, so as to empty the rectum, and thereby expel thread-worms. It sometimes causes slight nausea but not vomiting, and it seldom gripes. It sometimes occasions the patient to see objects as if they were coloured green.

Dose, gr. ii every other night, until three doses have been taken; or gr. i twice a day or oftener for two days; after which a purgative is often useful, though it is frequently unnecessary. It has little taste, and may be easily given to children in sugar. It is sometimes given in half-grain doses every three hours. I have not found it necessary to increase the dose ma-

terially, even for an adult, and round-worms are not so common in grown-up persons as in children. The Santonine ought to be very carefully preserved in a dark cupboard.

SCAMMONII RADIX—SCAMMONY ROOT.—This root is often in pieces of a foot or more in length, and from two or three inches in diameter at the thickest end. It tapers very slowly and slightly. It has a dirty brownish appearance externally, and is white within, having a slight odour, but no taste. It is brought from Smyrna for the purpose of yielding a purer form of Scammony than that which is generally imported.

SCAMMONIÆ RESINA.—This is obtained by the action of Rectified Spirit upon powdered Scammony root, and is intended to represent a very pure form of Virgin Scammony; an object which is accomplished by the process given in the Pharmacopœia. The resin of Scammony resembles Aloes in appearance more than Scammony, being very dark-coloured, somewhat translucent, compact, and brittle. It has also an odour which is described as fragrant, whilst ordinary Virgin Scammony is destitute of odour. The resin does not form an emulsion with milk quite so easily as ordinary Scammony.

Dose, gr. iv to gr. viii in powder, or made into an emulsion by rubbing it with 2 or 3 ounces of milk.

SODÆ ARSENIAS, 2NaO , HO , $\text{AsO}_5 + 14\text{HO}$, eq. 312.—A colourless soluble salt. It is used in the same cases as the compounds of Arsenic generally, but it is thought to be less liable to disorder the stomach than the Liquor Potassæ Arsenitis, and it has been introduced into the Pharmacopœia on this account. The official solution contains gr. iv to the fl. oz. i. *Dose*, ℥iii to ℥v, to be increased very carefully, or not at all.

SUCCUS CONII, SCOPARII, and TARAXACI.

—A Succus, or expressed juice, is a form of medicine which has not been officinal previous to the publication of the Ph. Br. It is likely to be a valuable kind of preparation. The following information upon the subject has been kindly furnished to me by Messrs. Allen, of Ampthill; Evans, of Liverpool; Ransom, Hitehin; Squire, of London; and Stocker, of Guy's Hospital. This information has been the more important and valuable, as the means of experimenting satisfactorily, and thereby obtaining a practical knowledge of these expressed juices, is beyond the reach of any but extensive manufacturers.

The general process for preparing them is the same in each case. The fresh plant is crushed and the juice pressed out, and to every three measures of juice one measure of spirit is added. The mixture then stands for seven days, that the dregs or coagulated matters may subside, after which the liquid is filtered, and constitutes the "Succus" of the Ph. Br.

The amount of juice obtained depends partly upon the method adopted, and very much upon the freshness of the plants. They yield much more juice if crushed immediately upon being gathered, than if they remain even a single day; and the operation of preparing them will therefore be necessarily limited chiefly to those districts where they grow most readily. From this circumstance it happens that the Succus Scoparii and Taraxaci are easily made in this town (Liverpool), as the Broom grows in unlimited quantities within a few miles; but Succus Conii can only be prepared in the more southern parts of England, as there is no district in the north, where the Hemlock grows in sufficient abundance. The yield also depends very much upon the season, as to

whether it is wet or dry. The proportion also between the amount of juice, and the solid extract which can be obtained from it, differs considerably in different seasons, and varies with the nature of the land upon which the plants are grown.

Succus Conii.—A cwt. of fresh Conium yields about $5\frac{1}{2}$ gallons of expressed juice, to which must be added a third of spirit, making altogether about $7\frac{1}{3}$ gallons of Succus. When this quantity is compared with the amount of Extract which is obtained by evaporating the juice before adding the spirit, the average of all the information I have obtained agrees pretty closely, and shows that \mathfrak{mxxvi} of the Pharmacopœial Succus equals gr. i of Extract of Conium.

The *Dose* will therefore depend upon that of the Extract; and as gr. ii to gr. iii, or even gr. v or gr. x, are sometimes given, the dose of the Succus will be from \mathfrak{mxxx} (or gr. ii) to a much larger quantity; but as it is certain that the Succus will prove a much more active preparation than the Extract, the prescriber must never venture upon such doses as $\mathfrak{f}\mathfrak{z}\mathfrak{i}\mathfrak{i}\mathfrak{s}$ to represent gr. x of Extract. It will be safest, until we have more extended experience, to say that the dose is from \mathfrak{mxxx} to $\mathfrak{f}\mathfrak{z}\mathfrak{i}$.

Succus Scoparii.—Fresh Broom tops yield from one-third to one-fourth their weight of expressed juice, the difference arising from the method employed; the Broom being crushed between millstones instead of in a simple mortar, in the case of the larger yield, and the juice being afterwards expressed by hydraulic pressure.

Dose.—The proportion which the Succus thus obtained bears to the decoction of Broom, is such that $\mathfrak{f}\mathfrak{z}\mathfrak{i}$ of the Succus equals fl. oz. iv of Decoction; and as the dose of Decoction is from fl. oz. ii to fl. oz. iv, that of Succus will be from \mathfrak{mxxx} to $\mathfrak{f}\mathfrak{z}\mathfrak{i}$.

Succus Taraxaci.—The yield of Succus furnished by *Taraxacum* varies much more, according to the information supplied to me, than in the case of other juices. But from the best average that I am able to obtain, the Succus is nearly fifty times as strong as the decoction, so that fʒi of Succus equals about fl. oz. vi of decoction.

Dose.—The Dose, when calculated upon the above proportions, will be from mxxx of the Succus (fl. oz. iii of decoction) to fʒi.

*SUMBUL (not officinal in the Ph. Br.).—This substance, in the form of a Tincture, has been before the profession for many years, but has not received the stamp of Pharmacopœial approbation. It is the root of a species of large Umbelliferous plant growing in India, the root being sometimes almost as thick as the arm above the wrist. It appears to me to possess valuable properties in one, but so far as my observation goes, only one form of disease, viz. spasmodic muscular motions, probably unconnected with organic disease. It has appeared to be of decided use in some aggravated cases of Chorea in adults; and I have seen its employment followed by recovery in some convulsive affections in infants which resisted other treatment, and appeared, on the whole, to be more spinal than of teething, cerebral, or abdominal origin. It is often difficult to distinguish between *post* and *propter* in such cases; but the medicine has impressed me favourably in cases resembling Chorea, whether strictly to be called by this name or not. *Dose* of the Tincture, mxxx three times a day; or a proportionally larger dose twice a day. To an infant at the age of teething, I have given gtt. ii to gtt. iv as a dose.

*TRITICUM REPENS, or COUCH GRASS (not

officinal in Ph. Br.).—This weed has long had a sort of reputation as a purifier of the blood, and as a substitute for Sarsaparilla, but it has lately been brought before the profession by Dr. Thompson, as a remedy for irritable bladder. It is given in the form of Infusion or Decoction; an ounce of the dried creeping stems being added to a pint of boiling water. The *Dose* is half a pint a day; sometimes even a pint a day. The herb should be collected before the erect stem and leaves have shot up in spring.

***VERATRUM VIRIDE**—**AMERICAN HELLEBORE**, (not officinal in the Ph. Br.)—This drug has been used in America with such benefit, that much was looked for in this country on its introduction. If disappointment has been felt at the result, it was not unnatural, from the exaggerated manner in which its powers were lauded up; but the evidence in its favour, even in this country, is sufficient to justify a continued trial.

The part of the plant employed is the rhizome, with the rootlets cut or broken off. It closely resembles the same part of the *Veratrum album*, or White Hellebore, which has long been present in the British Pharmacopœias. In the general outline of its properties it resembles acro-narcotics generally, in producing vomiting, and subsequent tingling or numbness, with loss of muscular power for a time; but according to the American accounts it possesses special properties of its own, which prevent any other medicine from being a perfect substitute.

Characteristic Effects.—In sufficient dose *Veratrum viride* produces vomiting, though very slowly; nearly an hour frequently elapsing before it acts in this manner. *It seldom if ever purges.* Whether actual vomiting occurs or not, there is often great and some-

times alarming prostration ; but this is easily relieved by opiates and stimulants, and death does not appear to have been ever caused by it. A most striking circumstance is the great reduction in the frequency of the pulse, which occurs either with or without previous vomiting, the pulse being sometimes as low as thirty-five or forty in the minute, and at the same time small and feeble. All the secretions are increased during its employment.

Medicinal Employment.—*Veratrum viride* has been chiefly used in America in the treatment of acute febrile and inflammatory diseases, such as Pneumonia and Acute Rheumatism ; and it has also been employed, though with less decided benefit, in Gout and Chronic Rheumatism. The other acute inflammatory diseases in which it is said to have been useful are Pleurisy, Croup, Iritis, Puerperal Peritonitis, and Vesicular Bronchitis, with very difficult expectoration. It has also proved useful in Spasmodic Asthma.

Dose and Mode of Employment.—The most useful form is that of a saturated *Tincture* (see below) which ought always to be given in very small doses at first. 3 or 4 minims is the full dose at first, to be repeated every three hours. It may be increased by the addition of a drop to each dose, until the pulse begins to fall, or some degree of nausea or chilliness is felt. It is sometimes necessary to discontinue its employment and administer stimulants ; and they are often beneficially employed along with it. An *Extract*, made by evaporating the expressed juice *in vacuo*, is sometimes used in doses of gr. $\frac{1}{4}$ to gr. ss every three hours. Heat destroys the properties of the plant, and the decoction and infusion are therefore inert.

Tinctura Veratri Viridis (Norwood's American form) is made by macerating 8 ounces of the dried

Veratrum viride for a fortnight, in a pint of Rectified Spirit, shaking it up frequently.

Dose, $\mathfrak{m}iii$ at first, increased by $\mathfrak{m}i$ or $gtt. i$, each time of taking it, until the dose amounts to $\mathfrak{m}viii$ or $\mathfrak{m}x$, or some nausea or depression is produced. It is necessary to notice the important difference between drops and minims, when a dose is mentioned so small as the above. The drop of a tincture is seldom much more than half a minim. Dr. Wood, of America, says the dose should be at first 6 or 8 *drops*, which correspond very nearly with the $\mathfrak{m}iii$ or $\mathfrak{m}iv$ mentioned by other American authorities.

General List of Differences between the British Pharmacopœia and those of London, Edinburgh, or Dublin.

INCLUDING BOTH OMISSIONS, ADDITIONS, AND
ALTERATIONS EITHER OF NAME, STRENGTH,
OR INGREDIENTS, AND THE DOSES.

Alterations in strength are indicated by the nearest simple fraction. Thus four twenty-ninths will be expressed by "about one-seventh," whilst five-thirds stronger will be "nearly twice the strength." When there is no change at all, or it is extremely small in amount, and does not affect the sensible properties of taste or smell, no allusion is made to it.

Absinthium, L. Omitted.

Acetum Britannicum, L. Omitted.

—— Cantharidis, L. D. E. Omitted.

—— Colchici, L. D. E. Omitted.

—— Destillatum, L. E. Omitted.

—— Opii, E. D. Omitted.

—— Scillæ, L. D. E. Omitted.

Acidum Aceticum. About one-fifteenth weaker than formerly, L.

—— Aceticum Camphoratum, D. E. Omitted.

—— Aceticum Dilutum. About one-third weaker than formerly,

—— Hydrocyanicum Dilutum. Same strength as

L., *i.e.* 2 per cent., but only about two-thirds the strength of E. *Dose*: London and Dublin prescribers will not alter their usual dose; but Edinburgh prescribers must give half as much again as formerly. *Dose*, $\mathfrak{m}iii$ to $\mathfrak{m}v$.

Acidum Nitricum. Slightly stronger than L., and therefore more useful as a Caustic.

— Nitricum Dilutum. Slightly stronger than D., and about one-third stronger than L. and E. *Dose*, $\mathfrak{m}xv$ to $\mathfrak{m}xxx$.

— Nitro-Hydrochloricum Dilutum. Added. Intended to be nearly the same strength as the other diluted acids. *Dose*, $\mathfrak{m}xx$ to $\mathfrak{m}xxx$.

— Phosphoricum Dilutum, is about one-seventh stronger than formerly. *Dose*, $\mathfrak{m}x$ to $\mathfrak{m}xx$.

— Pyroligneum, E. Omitted.

— Sulphuricum Aromaticum. Contains the same proportion of spices as formerly, but only about three-fourths the quantity of acid. *Dose*, $\mathfrak{m}xxx$.

— Sulphuricum Dilutum. Nearly same as D. and E.; about one-seventh weaker than L. *Dose*, $\mathfrak{m}v$ to $\mathfrak{m}x$ in ordinary cases, but $\mathfrak{m}xx$ to $\mathfrak{m}xxx$ in Hæmoptysis and Cholera.

— Sulphurosum. Added. A watery solution for external use. *Use*, fl. oz. i, in an fl. oz. viii lotion.

Aconitia. New. Present name for Aconitina.

Ærugo, L. Omitted.

Allium, E. Omitted.

Aloc hepatica, L. Omitted.

Althæa, L. Omitted.

Ammoniæ Acetatis Liqueur. About five times as strong as L., and about six times as strong as D. and E. *Dose*, $\mathfrak{m}xxx$ to $\mathfrak{m}xl$, or fl. oz. ss to f 3v in an fl. oz. viii mixture.

— Benzoas. Added. *Dose*, gr. xv. to ʒii. See p. 42.

Ammonię Bicarbonas, D. Name changed to Ammon. Carb.

— Carbonas. Present name for Ammon. Bicarb., D., and Ammon. Sesquicarb., L.

— Phosphas. Added. Dose, gr. xv to ℥ii. See p. 43.

— Sesquicarbonas, L. Name changed to Ammon. Carb.

Angelica, E. Omitted.

Antimonii Oxysulphuretum, L. Name changed to Antimonium Sulphuratum.

— Potassio-Tartras, L. Name changed to Antimonium Tartaratum.

— Sulphuretum Aureum, E. Name changed to Antimonium Sulphuratum.

— Sulphuretum Præcipitatum, D. Name changed to Antimonium Sulphuratum.

— Terebiloridi Liquor. Added for preparing Oxide of Antimony.

— Sulphuratum. Present name for Antim. Oxysulph., L., and for Antim. Sulphuret. Aureum, E., and Antim. Sulphuret. Præcip., D.

Antimonium Tartaratum. Present name for Antim. Potass. Tart., Ph. L.

Aquæ generally. See remarks, p. 14.

Aqua Ammoniæ Acetatiz, E. Name changed to Liq. Ammon. Acet., which is now six times as strong as the old Edinburgh preparation. Dose, ℥xxx to ℥xl, or fl. oz. ss to f̄ 5v, in an fl. oz. viii mixture.

— Anisi, D. Omitted.

— Camphoræ. Present name for Mistura Canphoræ.

— Cassiæ, L. Omitted.

— Chlorinei, E. Name changed to Liquor Chlori.

— Laurocerasi, D. E. About one-fourth stronger

- than formerly, E. ; and colourless, as it now contains no Spirit of Lavender, which was present in the Ph. E. Dose, \mathfrak{mxx} to \mathfrak{mxxx} .
- Aqua Menthæ Piperitæ. Only three-fourths old strength. Dose, fl. oz. i.
- Menthæ Pulegii, D. Omitted.
- Menthæ viridis. Only three-fourths old strength. Dose, fl. oz. i.
- Rosæ. About one-fourth stronger. Dose, fl. oz. i.
- Sambuci. About one-fourth stronger. Dose, fl. oz. i.
- Sodæ Effervescens, E. Omitted.
- Argenti Oxidum. Formerly in the Ph. D., but not in the Ph. L. Dose, gr. ss. See p. 45.
- Arnica root. Added. For making a Tincture. See p. 46.
- Arsenici Chloridi Liquor, L. Omitted.
- et Hydrargyri Hydriodatis Liquor, D. Omitted.
- Atropiæ Sulphas, L. Omitted.
- Bebeern Bark. Added for obtaining Beberiæ Sulphas.
- Beberiæ Sulphas. Added. Dose, gr. i to gr. iii as a tonic, gr. v to gr. x in Ague. See p. 47.
- Bela, or Bael. Added. For making a liquid extract. See p. 48.
- Belladonna root. Added. For making a liniment.
- Bismuthi Nitræ or Trisnitræ. Name changed to Bismuthum Album.
- Bismuthum Album. Present name for Bismuthi Nitræ or Trisnitræ.
- Bone Black or Ivory Black. Added. A form of Animal Charcoal, very good for poultices for sloughing sores. See p. 52.
- Bromine. Added. For making Bromide of Potassium. See p. 52.

- Bucco. The present name for Buchu.
- Calamine and its preparations. Omitted.
- Calcii Chloridum, L. D. E. Omitted.
- Calamus Aromaticus, E. Omitted.
- Calomelas, Calomel. Present names for Hydrargyri Chloridum.
- Calx Chlorata. Present name for Calx Chlorinata.
- Canella, L. D. E. Omitted.
- Carota, L. Omitted.
- Cassiae Cortex and Oil, E. Omitted.
- Cataplasma Conii. Powdered Leaf ordered instead of the extract.
- Centaurium, E. Omitted.
- Cerates are omitted.
- Chimaphila, L. Omitted.
- Chirata. Present name for Chiretta.
- Chiretta. Name changed to Chirata.
- Chlorinei Aqua, E. Name changed to Chlorig Liquor.
- Chlorig Liquor. Present name for Chlorinei Aqua.
- Cinnabar, E. Omitted.
- Collodium. Added. See p. 83.
- Condy's Disinfecting Liquid. Added by the name of Liq. Potassæ Permanganatis. See p. 113.
- Confectio Amygdalæ, L. E. Name changed to Pulvis Amygdalæ Co.
- Aromatica, L. D. E. Omitted.
- Aurantii, L. E. Omitted.
- Cassiæ, L. Omitted.
- Catechu Comp., D. and E. Omitted.
- Opii, L. E. Omitted.
- Piperis. Now contains no Inula root, and is flavoured with Caraway instead of Fennel. Dose, ʒi to ʒii two or three times a day for weeks.
- Rutæ, L. Omitted.
- Scammonii. Differs from Ph. L. in containing no Syrup of Roses. Dose, gr. xv to ʒss.

Confectio Sulphuris. Flavoured with Orange instead of Saffron and Ginger. A teaspoonful to a table-spoonful.

Conserva Amygdalarum, E. Name changed to Pulv. Amygdal. Comp.

— Aurantii, E. Omitted.

— Rosæ, E. Name changed to Confectio Rosæ.

Cornu and Cornu Ustum, L. Omitted.

Corrosive Sublimatc. The present name for Hydrargyri Bichloridum.

Cupri Ammonio-Sulphas, L. D. E. Omitted.

Curcuma, E. Omitted.

Cusso. Added. Present name for Kousso. *Dose*, oz. ss to oz. i.

Cydonium, L. Omitted.

Cyminum, L. Omitted.

Decoetum Aloes Comp. One-third stronger of Aloes than Ph. L. Gr. vss of Aloes in fl. oz. i. *Dose*, f ʒii to fl. oz. ss.

— Amyli, L. Omitted.

— Chinaphilæ, L. Omitted.

— Cinchonæ Flavæ. Appearance very different from the old one, as it is now to be strained when cold, instead of whilst hot, which will produce a clear instead of a turbid decoction. *Dose*, fl. oz. i to fl. oz. iv.

— Cinchonæ Pallidæ, L. D. E. Omitted.

— Cinchonæ Rubræ, L. E. Omitted.

— Cydonii, L. Omitted.

— Dulcamaræ, L. D. E. Changed to Infusion.

— Gallæ, L. Omitted.

— Granati (rind of fruit), L. Omitted.

— Guaiaci, E. Omitted.

— Hæmatoxyli. Contains Cinnamon, which the Ph. L. and D. did not. *Dose*, fl. oz. i to fl. oz. iv.

- Decoctum Hordei Comp., L. Omitted.
- Lini Comp., D. Omitted.
- Mezerei, E. Omitted.
- Myrrhæ, D. Omitted.
- Pareiræ. One-fifth stronger than formerly.
Dose, fl. oz. i to fl. oz. ii.
- Pyrolæ, D. Omitted.
- Quercus. Considerably stronger than Ph. L.
- Sarzæ, to be made from the *unsplit* root. Contains therefore less Starch than formerly.
- Scoparii. Present name for Dec. Scopar. Co. Differs from Ph. L. in containing no Juniper or Dandelion, and from Ph. E. in containing no Cream of Tartar. Is therefore a less powerful diuretic.
Dose, fl. oz. ii to fl. oz. iv.
- Senegæ, L. D. Changed to Infusion.
- Taraxaci. Only one-fourth strength of Ph. L., and one-eighth strength of E. Dose, fl. oz. ii to fl. oz. viii.
- Tormentillæ, L. Omitted.
- Ulni, L. Omitted.
- Uvæ-Ursi, L. D. Changed to Infusion.
- Digitalinum. Active principle of Digitalis. Added.
Dose, gr. $\frac{1}{100}$ to gr. $\frac{1}{50}$. See p. 87.
- Electuaries, E. Name changed to Confections, when retained.
- Electuarium Aromaticum, E. Omitted.
- Catechu, E. Omitted.
- Opii, E. Omitted.
- Sennæ, E. Name changed to Confectio Sennæ.
- Emplastrum Ammoniaci, L. D. E. Omitted.
- Assafœtidæ, E. Omitted.
- Belladonnæ. Same strength as L., twice as much Belladonna as E. and D.
- Calcificiens. Only half the quantity of Cantha-

rides of Ph. D., and therefore less liable to blister when long worn.

Emplastrum Cantharidis. Same strength as L. and D., one-fourth stronger than E.

— Cantharidis Comp., E. Omitted.

— Cumini, L. Omitted.

— Galbani. Same formula as Empl. Gummosum, E. Less stimulant than Empl. Galbani, Ph. L.

— Empl. Gummosum, E. Name changed to Empl. Galbani.

— Lithargyri. New name for Empl. Plumbi.

— Picis. Contains more Frankincense, and is therefore more stimulating than Ph. E.

— Plumbi. Name changed to Empl. Lithargyri.

— Potassii Iodidi, L. Omitted.

— Simplex, E. Omitted.

Enema Anodynum, E. Name changed to Enema Opii.

— Foetidum, D. and E. Name changed to Enema Assafoetidae.

— Magnesiae Sulphatis. Present name for Enema Catharticum, D. E.

— Opii. Same strength as Enema Anodyn., Ph. E., Twice strength of Ph. L. m_{xxx} in fl. oz. ii.

— Tabaci. One-fifth stronger than Ph. L.

— Terebinthinae. Contains Starch instead of Yolk of Egg and Barley Water.

Essentiae, D. All omitted by name, though several are retained under the altered name of Spirits.

Essentia Menthae Piperitae, D. Name changed to Spiritus Menth. Pip. Dose, m_x to m_{xxx} .

— Myristicae Mosehatae, D. Name changed to Spt. Myristicae. Dose, m_x to m_{xxx} .

— Rosmarini, D. Name changed to Spt. Rosmarini. Dose, m_x to m_{xxx} .

Euphorbium, E. Omitted.

Extractum Anthemidis. Now has Oil of Camomile added.

— Belæ Liquidum. Added. fl. oz. i contains 1 oz. of Bacl. Dose, fl. oz. ss to fl. oz. i. See p. 48.

— Calumbæ. Dose, gr. v to gr. xx.

— Cinchonæ (Yellow Bark), L. E. Omitted.

— Cinchonæ Pallidæ, L. E. Omitted.

— Cinchonæ Rubræ, L. E. Omitted.

— Cinchonæ Flavæ Liquidum. Added. $\frac{1}{2}$ oz. of Bark in fʒi. Dose, ʒxxv, nominally equal to ʒii of Bark. See p. 87.

— Colehieî and

— Colehieî Acetieum are now nearly twice their former strength, in consequence of the new directions to separate the starch from the juice previous to evaporation. Dose, gr. i to gr. ii, carefully watched.

— Colocynthidis (simple), L. E. Omitted.

— Colocynthidis Comp. Old form nearly restored. Scarcely differs from the Pil. Coloc. Co., Ph. L. Dose, gr. ii to gr. v.

— Digitalis, E. Omitted.

— Ergotæ Liquidum. Added. 60 gr. of Ergot in fʒi. Dose, ʒxxx to fʒi. See p. 88.

— Filicis Liquidum. Added. Present namo for Oil of Male Fern. Dose, ʒxxx to fʒii, after a six hours' fast. See p. 89.

— Laetnæ, L. Omitted.

— Opii Liquidum. Added. A watery extraet of Opium, which appears to be intended as a substitute for Battley's Anodyne, and is probably the same strength as Laudanum. Dose, same as that of Laudanum.

— Papaveris, L. E. Omitted,

— Pareiræ, L. E. Omitted.

- Extractum Pareiræ Liquidum.** Added. fl. oz. i contains 1 oz. of Pareira. Dose, fʒi.
- **Sarzæ Liquidum.** Nearly the same as L., three times as strong as D., twice as strong as E.: fl. oz. i contains 2 oz. of root. Dose, mxxx to fʒii.
- **Styracis E.** Omitted.
- **Uvæ-Ursi, L.** Omitted
- Fel Bovinum Purificatum.** Added. This is not merely inspissated ox-gall, but it is purified by the action of Rectified Spirit, and then Evaporated. Dose, gr. ii.
- Ferri Ammonio-Chloridum, L.** Omitted.
- **Ammonio-Citras, L. D.** Name changed to Ferri et Ammoniae Citras.
- **Arsenias, added.** A green powder, insoluble in water. Dose, gr. $\frac{1}{24}$ to gr. $\frac{1}{6}$. See p. 90.
- **Carbonas, D.** Omitted.
- **et Ammoniae Citras.** The present name for Ferri Ammonio-Citras. Dose, gr. x to gr. xx.
- **et Quiniæ Citras.** Now made officinal. Gr. i of Quinia in gr. vi. Dose, gr. vi to gr. xii.
- **Oxidum Rubrum, E.** Name changed to Ferri Peroxidum.
- **Perchloridi Liquor.** Introduced for making a tincture. Nearly a saturated solution. Is a powerful styptic.
- **Phosphas.** Added. A powder insoluble in water. Dose, gr. iii to gr. vi. See p. 91.
- **Phosphas, Syrup of.** Added. Phosphate of Iron dissolved by excess of Phosphoric Acid. Gr. i in fʒi. Dose, fʒi to fʒii. See p. 93.
- **Potassio-Tartas, L.** Name changed to Ferrum Tartaratum.
- **Pulvis, D.** Name changed to Ferrum Redactum. Dose, gr. iii.
- **Scsquoxydum, L.** Omitted.

Ferri Sulphuretum, D. E. Omitted.

—— Valerianas, D. Omitted.

Ferrugo, E. Name changed to Ferri Peroxidum Hydratum.

Ferrum Redactum. The present name for Ferri Pulvis, Quevenne's Iron. Dose, gr. iii.

—— Tartaratum. The present name for Ferri Potassio-Tartras.

Fousel Oil. Added for the purpose of making Valerianate of Soda. See p. 93.

Fusel Oil. Added by the name of Fousel Oil.

Granatum, The Rind of the Fruit, L. Omitted.

Helleborus, L. Omitted.

Hydrargyri Ammonio-Chloridum. Name changed to Hydrargyrum Ammoniatum.

—— Bichloridum. Name changed to Hydrargyrum Corrosivum Sublimatum.

—— Biniodidum. Name changed to Hydrargyri Iodidum Rubrum.

—— Binoxidum. Name changed to Hydrargyri Oxidum Rubrum.

—— Bisulphuretum, L. Omitted.

—— Chloridum. Used in the new Pharmacopœia, wherever it is mentioned, as another name for Corrosive Sublimate. It cannot be too strongly impressed upon prescribers that they ought never in future to order Chloride of Mercury in a prescription, as the Pharmacopœia has now made it an officinal name for Corrosive Sublimate (see pp. 77 and 81, Ph. Br., 8vo ed.), and a dispensing druggist would plead its authority in case of mistake. The term Hydrargyri Subehloridum may be used without any fear of mistake, as it has never been applied to any mercurial compound except Calomel.

—— et Arsenici Hydriodatis Liquor, D. Omitted.

- Hydrargyri Iodidum. Name changed to Hydrargyri Iodidum Viride.
- Iodidum Rubrum. Present name for Hydrargyri Biniodidum.
- Iodidum Virido. Present name for Hydrargyri Iodidum.
- Nitrico-Oxidum, L. Name changed to Hydrargyri Oxidum Rubrum.
- Oxidum Rubrum. Present name for Hydrargyri-Nitrico-Oxidum.
- Subchloridum. Present synonym for Calomel.
- Sulphas. Present name for Hydrargyri Bipersulphas, Ph. L.
- Hydrargyrum Ammoniatum. Present name for Hydrargyri Ammonio-Chloridum, Ph. L., and for Hydrargyrum Præcipitatum Album, Ph. E.
- Corrosivum Sublimatum. Present name for Hydrargyri Bichloridum, Ph. L.
- Præcipitatum Album, E. Name changed to Hydrargyrum Ammoniatum.
- cum Magnesia, D. Omitted.
- Hyposulphite of Soda. Added, but only in the Appendix, and for purposes of analysis. Not intended for medicinal employment. It is, however, sometimes used internally in the treatment of Sarcina Ventriculi. Dose, gr. x to gr. xv; or, as a lotion, in Scabies and Porrigo, ʒi in fl. oz. i.
- Infusum Anthemidis. More than half as strong again (8 to 5), as Ph. L. and E. About one-fifth stronger than Ph. D. Dose, fl. oz. ii to fl. oz. viii.
- Armoraciæ Comp., L. Omitted.
- Aurantii, L. D. E. Twice strength of L. and E., one-fourth stronger than D., but contains neither Lemon Peel nor Cloves, formerly present in Ph. E. and D. Dose, fl. oz. i.

- Infusum Aurantii Comp., L. D. E. Omitted.
- Bueeo. New name for Inf. Buehu, L. D. E.
- Calumbæ. Nearly same as D., twice strength of L. and E. Dose, fl. oz. ss to fl. oz. i.
- Caryophylli. One-fourth stronger than L. and E. Dose, fl. oz. i.
- Cascarillæ. One-third stronger than L. and E. Dose, fl. oz. i.
- Catechu. Present name for Infus. Catechu Comp., Ph. L., little altered. Dose, fl. oz. i.
- Chiratæ. Present name for Infus. Chirettæ, D. E. Dose, fl. oz. i.
- Chirettæ, D. E. Name changed to Chiratæ.
- Cinchonæ Spissatum, L. Omitted.
- Cuspariæ. Above half as strong again (8 to 5) as old form. Dose, fl. oz. i.
- Cusso. Added. $\frac{1}{4}$ oz. of Koussou or Cusso the quantity ordered. A much smaller dose than the one generally used. Dose, fl. oz. iv to fl. oz. xvi.
- Digitalis. Contains no Spirit of Cinnamon as in L. and E., and is only half the strength ordered by E. and D. Dose, f $\frac{3}{4}$ ii to fl. oz. ss.
- Duleamaræ. Substitute for Decoet. Duleamaræ; but is about one-half stronger than L. and E., and twice the strength of D. Dose, fl. oz. ii to fl. oz. iv.
- Gentianæ Comp. Same as Ph. E. Flavour differs from L. and D. Contains Coriander instead of the Lemon Peel of L. The Ph. D. had nothing but Gentian and Orange Peel. Contains also $\frac{1}{5}$ of Pr. Spt. Dose, fl. oz. i to fl. oz. ii.
- Juniperi, D. Omitted.
- Lupuli, L. One-third stronger than formerly.
- Menthæ viridis, D. Omitted.
- Pareiræ, D. E. Omitted.
- Polygalæ, D. Changed to Infus. Senegæ.

- Infusum Pyrolæ, D. Omitted.
- Quassia. Nearly same as D., three times as strong as L., twice as strong as E. Dose, fʒii to fl. oz. i.
- Rhei, L. D. E. One-third stronger than L., but only one-half strength of E., and contains no Sp. Cinnamon., which was in E. Dose, fl. oz. i.
- Rosæ Acidum. New name for Infus. Rosæ Comp., L. and E., but contains slightly less acid.
- Rosæ Comp. Name changed to Infus. Rosæ Acidum.
- Senggæ. One-fifth weaker than E. Dose, fl. oz. i.
- Sennæ. New name for Infus. Sennæ Co., L. D. E. Same as D., but only half strength of Ph. L., and two-thirds strength of Ph. E. Flavour also different from E., as it now contains no Tamarinds or Coriander. Dose, fl. oz. i to fl. oz. iv.
- Simarubæ, D. E. Omitted.
- Uvæ-Ursi. Substitute for Decoct. Uvæ-Ursi.
- Inula, L. Omitted.
- Iodinium. Name changed to Iodum.
- Iodum. Present name for Iodinium.
- Juniperi Cacumina, E. D. Omitted.
- Fructus, L. D. E. Omitted.
- Kamela. Added. Anthelmintic. Dose, ʒi to ʒiii. See p. 98.
- Kousso. Added under the name of Cusso. Dose oz. ss to oz. i.
- Lactuca sativa, L. D. Omitted.
- virosa, D. Omitted.
- Lactucarium, D. E. Omitted.
- Lauri Baccæ, L. Omitted.
- Lavandula, E. Omitted.
- Linimentum Aconiti. Added. An alcoholic solution of Aconite root and Camphor, about 8 times as

strong as the Tincture of Aconite of the new Pharmacopœia. One fluid ounce contains 1 oz. of Aconite root and about twenty grains of Camphor, which is probably added in this small quantity for the sake of its odour, to distinguish it from the weaker tincture, rather than for its medicinal properties. As this liniment contains no oil or soap, it cannot be used advantageously by way of friction, but must be painted on by a camel's hair pencil, unless it is mixed with Soap Liniment or Glycerine.

Use externally, m_{xxx} .

Linimentum *Æruginis*, L. Omitted.

— *Ammonia*, L. D. E. One-third weaker than L. and E.

— *Ammonia* Comp., E. An alcoholic liniment. Omitted. Is nearly represented by Lin. Camph. Comp. of the Ph. Br.

— *Ammonia* Sesquicarbonatis, L. Omitted.

— *Anodynum*, D. Name changed to Linim. *Opii*.

— *Belladonnæ*, added. An alcoholic solution of *Belladonna* root and Camphor, in the same proportion as Linim. *Aconiti* above. It is 10 times as strong as *Tinctura Belladonnæ*. (See Linim. *Aconiti*.) Externally applied, m_{xxx} or more.

— *Camphoræ* Comp., L. D. Nearly represents the Lin. *Ammon. Comp.*, Ph. E., which has been omitted. It contains nearly twice as much (5 to 3) strong Liq. *Ammon.* as the old London form, and is therefore much more stimulating.

— *Cantharidis*, is now intended to act as a blistering fluid, and has no substantial resemblance to the old Linim. *Canth.*, Ph. D. A single application will frequently blister if the skin is tender or recently shaved.

— *Chloroformi*. Added. Half and half Chloro-

form and Camphor Liniment, and is therefore very stimulating on its first application to a tender skin. Use externally, \mathfrak{mxxx} to $\mathfrak{f3ii}$.

Linimentum Crotonis. Now contains Olive Oil, instead of Oil of Turpentine, and is therefore less stimulating. See p. 26.

— Hydrargyri. Same as Linim. Hydrarg. Co., Ph. D. Slightly more stimulating, but much thinner in consistence than Ph. L.

— Iodi. Added. See p. 32.

— Opii. Same strength as Linim. Anodynum, Ph. D.; but double the strength of Ph. L. Half and half Tr. Opii and Lin. Sapon.

— Saponis, L. E. D. Almost identical with Ph. E. Contains 15 times as much Oil of Rosemary as Ph. L. Lin. Sapon., Ph. D., contained no Oil of Rosemary, and therefore differed very much in smell.

— Simplex, E. Omitted.

— Terebinthinum (Ol. Tereb. $\mathfrak{fl. oz. v}$, Ung. Resinæ, $\mathfrak{oz. viii}$). Nearly identical with D. Very different from E., and totally unlike L., which contained Camphor and a little Soft Soap, but no Resin Ointment.

— Terebinthinæ Aceticum. Added. Contains strong Acetic Acid and Oil of Turpentine.

Linum Catharticum, E. Omitted.

Liquor Aluminis Comp., L. Omitted.

— Ammoniae Acetatis, L. D. E. About 5 times as strong as Ph. L., and 6 times as strong as D. and E. It is difficult to assign any reason for this important change in strength, without any indicating change of name. Dose, \mathfrak{mxxx} to $\mathfrak{m xl}$, or $\mathfrak{fl. oz. ss}$ to $\mathfrak{f3v}$ in an $\mathfrak{fl. oz. viii}$ mixture.

— Ammoniae Citratis, L. Omitted.

— Ammoniae Fortior. Very slightly $\frac{1}{15}$ stronger than formerly.

- Liquor Ammoniae Sesquicarbonatis, L. Omitted.
- Antimonii Tartarizati, D. Omitted.
- Antimonii Terchloridi. Added for obtaining Oxide of Antimony.
- Arsenicalis. Present name for Liq. Potassæ Arsenitis. Dose, $\mathfrak{m}iii$ to $\mathfrak{m}v$.
- Arsenici Chloridi, L. Omitted.
- Arsenici et Hydrargyri Hydriodatis, D. Omitted.
- Atropiæ. Added. Gr. iv in fl. oz. i of weak spirit. Use, for dilating the pupil gtt. i, applied to the eye. Is not intended for internal use.
- Calcis Chloratæ. Present name for Liq. Calcis Chlorinatæ. Dose, $\mathfrak{m}xv$ to $\mathfrak{m}xx$ internally.
- Calcis Chlorinatæ. Name changed to Liq. Calcis Chloratæ.
- Calcis Saccharatus. Added. About 12 times as strong as Lime Water. Dose, $\mathfrak{m}xv$ to $\mathfrak{f}5i$, in a tea-cupful of milk. See p. 100.
- Chlori. Present name for Aqua Chlorinei, Ph. E.
- Ferri Perchloridi. Introduced to make a Tincture. Nearly a saturated solution. A powerful styptic.
- Hydrargyri Bichloridi, Ph. L. Omitted. See p. 17.
- Hydrargyri Nitratis Acidus. Present name for Liq. Hydrargyri Pernitratis, D. Should be applied by a camel's-hair pencil to syphilitic warts. $\mathfrak{m}i$ to $\mathfrak{m}ii$ in fl. oz. i is the proper strength for a gargle.
- Hydrargyri Pernitratis, D. Now called Liq. Hydrarg. Nitr. Acidus.
- Morphicæ Acetatis. Omitted.
- Morphicæ Hydrochloratis, L. D. E. Gr. iv in fl. oz. i. Almost identical in strength with D. and E., only half strength of Ph. L. Dose, $\mathfrak{m}v$ to $\mathfrak{m}xxx$. About equal to Laudanum.

- Liquor Plumbi Subacetatis. Present name for Liquor Plumb. Diaacetatis. *Use*, m xxx to f ʒi in fl. oz. viii.
- Plumbi Subacetatis Dilutus. About one-third stronger than Ph. L., but only half the strength of Ph. D.
- Potassæ Arsenitis. Name changed to Liq. Arsenicalis.
- Potassæ Permanganatis. Added. Gr. iv in fl. oz. i. A form of Condyl's Disinfecting Liquid. Dose, m x to m xxx , much diluted. See p. 113.
- Potassii Iodidi Comp., L. Omitted.
- Sodæ. One-sixth weaker than formerly.
- Sodæ Arseniatis. Added. Same strength as Liq. Arsenicalis, *i.e.* gr. iv in fl. oz. i. Dose, m iii to m v , to be increased very carefully, or not at all.
- Sodæ Carbonatis, D. Omitted.
- Sodæ Chloratæ. Present name for Liq. Sodæ Chlorinatæ.
- Sodæ Chlorinatæ. Name changed to Liq. Sodæ Chloratæ.
- Strychniæ, added. Same strength as Liq. Atropiæ, gr. iv in fl. oz. i. Dose, gtt. iv (gr. $\frac{1}{30}$) to gtt. viii (gr. $\frac{1}{15}$), twice a day.
- Zinci Chloridi, D. Omitted.
- Lithiæ Carbonas. Added. Dose, gr. iii to gr. vi.
- Citras. Added. Dose, gr. x to gr. xv.
- Lupulina, D. Omitted.
- Magnesia and Magnesiæ Carbonas. If prescribed without the addition of "Levis," the heavy preparations are to be dispensed. It was formerly necessary to add "Ponderosa."
- Malva, E. Omitted.
- Matico. Name changed to Matica.
- Mel Rosæ, L. E. Omitted.
- Melissa, E. Omitted.
- Menyanthes, E. Omitted.

- Mistura Acaciæ, L. and E. Omitted. The old Edinburgh Mist. Acaciæ was similar to the present Mist. Amygdalæ, but contained less Almonds. The London Mistura Acaciæ is now called Mucilago Acaciæ.
- Althææ, E. Omitted.
- Amygdalæ. Twice strength of E.
- Camphoræ. Name changed to Aqua Camphoræ.
- Camphoræ cum Magnesia, E. Omitted.
- Creasoti. m i in fl. oz. i; quantity of Oil of Juniper, 6 times as much as before. Dose, fl. oz. i.
- Cretæ. No Spirit of Cinnamon now, which was present in E. Dose, fl. oz. i.
- Ferri Aromatica, D. Omitted.
- Ferri Composita. Contains nearly one-third more Carbonate of Iron than the old Ph. L., and about 30 times as much volatile oil in the Spirit of Nutmeg. Its flavour will, therefore, be much more chalybeate and aromatic. Dose, fl. oz. ss to fl. oz. i.
- Gentianæ Comp., L. Omitted.
- Guaiaci, L. E. About one-fourth more Guaiacum Resin than formerly. Dose, fl. oz. i.
- Hordei, E. Omitted.
- Scammonii. Gr. iv of Scammony instead of gr. vii, as formerly in the Ph. E.
- Spiritus Vini Gallici, L. Omitted.
- Morphiæ Acetas, L. D. E. Omitted.
- Mucilago Acaciæ. Present name for Mist. Acaciæ, L., but contains more Gum. It has no substantial resemblance to Mist. Acaciæ, Ph. E., which is nearly represented by Mist. Amygdalæ, Ph. Br.
- Hordei, D. Omitted.
- Tragacanthæ. Only three-fourths strength of Ph. E. Dose, fl. oz. i or more.
- Mucuna, L. Omitted.

- Nectandra. The name by which Bebeeru Bark is introduced into the Pharmacopœia for the purpose of obtaining Beberia Sulphas.
- Oleum Æthereum, L. Omitted.
- Cassia, E. Omitted.
- Coriandri. Added.
- Fœniculi, L. D. Omitted.
- Filicis Maris. Introduced by the name of Extractum Filicis Liquidum. Dose, mxxx to fʒii after a six hours' fast. See p. 89.
- Origani, E. Omitted.
- Pulegii, L. Omitted.
- Rosæ, D. E. Omitted.
- Sassafras, E. Omitted.
- Succini, D. Omitted.
- Origanum, E. Omitted.
- Oxymel Scillæ, L. Omitted.
- Permanganate of Potash. Added for making the Liq. Potass. Permanganatis. An officinal form of Condy's Disinfecting Liquid. See p. 113.
- Petroleum, L. Omitted.
- Phosphorus, L. Omitted from the Materia Medica for medicinal use in the form of Phosphoretted Oil, etc., but introduced amongst the materials for making Phosphoric Acid.
- Pills. The dose of all the Pills is from gr. iv or gr. v to gr. viii or gr. x, unless otherwise specified.
- Pilula Aloes, E. Omitted.
- Aloes Barbadosis. Added. Same as Pil. Aloes Co., L. and D., except that Barbadoes Aloes are used instead of Socotrine.
- Aloes Comp., L. D. Name changed to Pil. Aloes Barbadosis.
- Aloes et Ferri, E. Omitted.
- Aloes et Myrrhæ, L. D. E. Same as D. and E., but contains twice as much Saffron as L.

- Pilula Aloes cum Saponē*, L. Omitted.
- *Aloes Socotrinæ*. Same as old *Pil. Aloes Co.*, L. and D., except that it is flavoured with Oil of Nutmeg, instead of Oil of Caraway.
- *Assafoetidæ Comp.* Same as *Pil. Assafoetid. E.*, and *Pil. Assaf. Co.*, D., except that it contains only two-thirds of the Dublin quantity of *Assafoetida*.
- *Calomelanos Comp.* Present name for *Pil. Hydrarg. Chlorid. Co.*, Ph. L.
- *Calomelanos et Opii*, E. Omitted.
- *Cambogiæ Comp.*, L. E. Same as E., but only two-thirds quantity of Aloes of L.
- *Colocynthis*, E. Identical with the *Pil. Coloc. Co.* of the new Pharmacopœia, except that Barbadoes Aloes are substituted in Ph. Br. for Socot. or East India Aloes in E.
- *Colocynthis Comp.* Almost identical with the *Pil. Colocynthis* of Ph. E. It differs considerably from the London pill in being flavoured with Oil of Cloves instead of powdered Cardamoms; and also in the proportions of the ingredients.
- *Conii Comp.*, L. Omitted.
- *Cupri Ammoniaci*, E. Omitted.
- *Digitalis et Scillæ*, E. Omitted.
- *Ferri Carbonatis*, E. Same as the pill of this name in the Ph. E., and intended as a substitute for *Pil. Ferri Comp.*, Ph. L., which is now omitted; but it differs in containing no Myrrh, which was present in the London *Pil. Ferri Co.*, and in containing nearly three times as much Carbonate of Iron. It is therefore a much more powerful, but less aromatic pill. Dose, gr. v, t. d.
- *Ferri Composita*, L. Omitted. See remarks on *Pil. Ferri Carbonatis*.
- *Ferri Iodidi*. Added. Nearly one-third consists of Iodide of Iron. Dose, gr. v, n. et m.

- Pilula Ferri Sulphatis, E. Omitted.
- Galbani Comp., L. Omitted. Pil. Assaf. Co. of the new Pharmacopœia somewhat resembles it, but contains nearly four times as much Assafœtida, and no Sagapenum.
- Hydrargyri Chloridi Comp., L. Name changed to Pil. Calomel. Comp.
- Ipecacuanhæ cum Scilla, L. Omitted.
- Ipecacuanhæ et Opii, E. Omitted.
- Opii. New name, but same strength as the Pil. Saponis Co., L.; and the same strength as Pil. Opii sive Thebaicæ, E.; but it differs from E. in containing Soap instead of Sulphate of Potash and Confection of Roses. Gr. v contain gr. i of Opium. Dose accordingly.
- Rhei, E. Omitted.
- Rhei Comp., L. D. E. Same as the old D. and E.; but it differs from L. in containing Oil of Peppermint instead of Oil of Caraway, which materially alters the flavour.
- Rhei et Ferri, E. Omitted.
- Saponis Comp., L. Name changed to Pil. Opii. Strength unchanged. Gr. i of Opium in gr. v.
- Scillæ, E. Practically the same as Pil. Scillæ Co., Ph. Br.
- Scillæ Co. Practically the same as Pil. Scillæ, E., and Pil. Scillæ Co., D.; but contains twice as much Squill as Pil. Scillæ Co., Ph. L.
- Styracis, E. Omitted.
- Styracis Comp., L. Omitted.
- Thebaicæ, E. Name omitted. Now called Pil. Opii. Gr. v contained gr. i of Opium.
- Piper Longum, L. E. Omitted.
- Pix Arida, E. Omitted.
- Pix Nigra, L. Omitted.

Plumbi Iodidum, L. D. E. Omitted.

— Nitras, E. D. Omitted.

— Oxidum Rubrum, E. Omitted.

Podophylli Resina. Added. Present name for Podophyllin. Care must be taken in prescribing to add the word "Resina," as the New Pharmacopœia has introduced "Podophyllum," which is merely the crude root of the plant, as well as the Resin, which has hitherto been termed Podophyllin. This name is so closely like that of the root, that if an abbreviated form is used in writing the prescription, error may arise, unless "Resina" is added when the resin is really intended. Dose, gr. $\frac{1}{6}$ to gr. ss or gr. i. See p. 111.

Podophyllum. The root. Added. See note above.

Potassa Caustica. The present name for Potassæ Hydras, Ph. L.

— cum Calce, L. D. E. Omitted.

— Sulphurata. The present name for Potassii Sulphuretum, L., and Hepar Sulphuris, D.

Potassæ Aqua Effervescens, E. Omitted.

— Bisulphas, E. Omitted.

— Bitartras. Name changed to Potassæ Tartras Acida. See p. 118.

— Citras. Added. Dose, \mathfrak{z} i to \mathfrak{z} ii or more.

— et Sodæ Tartras, E. Name changed to Sodæ et Potassæ Tartras.

— Permanganas. Introduced for making a solution. See p. 113.

— Tartras Acida. Present name for Potassæ Bitartras. See p. 118.

Potassii Bromidum. Added. Dose, gr. iii to gr. vi, or even gr. xxx; but the advantage of the larger doses is very doubtful. See p. 119.

Pulegium, L. Omitted.

- Pulveres Effervescentes are all omitted.
- Pulvis Aloes Comp., L. Omitted.
- Aluminis Comp., E. Omitted.
- Amygdalæ Comp. Present name for Confectio Amygdalæ, L., and Conserva Amygdalarum, E.
- Antimonialis. Intended as a substitute for Pulv. Antimonii Comp., Ph. L., and Pulv. Antimonialis, D. and E.; but it is prepared differently from them all, by first making Oxide of Antimony, and then simply mixing it with 2 parts of precipitated Phosphate of Lime. Dose, gr. ii to gr. x.
- Antimonii Comp., L. Name changed to Pulv. Antimonialis. Composition altered; doubtful whether for the better or not. Dose, gr. ii to gr. x.
- Aromaticus. Very different from Pulv. Aromaticus, D. and E., as it now contains Saffron and Cloves instead of Ginger.
- Catechu Comp. Now contains powdered Rhatany root, and only half the former quantity of Kino. Dose, gr. x to ℥i.
- Cinnamomi Comp., L. Omitted.
- Cretæ Aromaticus. Intended as a substitute for Pulv. Cretæ Co., L. D. E., but differs essentially in flavour by containing Saffron and Cloves, not formerly ordered by any of the Pharmacopœias, and by omitting the Tormentilla and Long Pepper in the London form. Dose, gr. x to ℥i.
- Cretæ Aromaticus cum Opio. 1 grain of Opium in 40 grains of the powder. Intended as a substitute for Pulv. Cretæ Co. cum Opio, but is very different in flavour, though it contains the same proportion of Opium. See Pulv. Cret. Arom. above. Dose, ℥i to ℥ii.
- Cretæ Comp., L. D. E. Omitted.
- Cretæ Comp. cum Opio, L. Omitted. Pulv.

- Aromat. cum Opio of the new Pharmacopœia contains the same proportion of Opium, but differs totally in flavour and aromatic constituents.
- Pulvis Cretæ Opiatæ, D. E. Omitted. The same remarks are applicable in this case as in the last.
- Ipecacuanhæ Compositus. Name changed to the following. Strength unchanged.
- Ipecacuanhæ cum Opio. Present name for Pulv. Ipecac. Comp. No change of strength or ingredients. Gr. x contain gr. i of Opium. Dose, gr. x to ʒi.
- Jalapæ Comp. Proportion of Jalap the same as formerly, but there is now rather more Ginger and rather less Cream of Tartar. Dose, gr. xv to ʒss.
- Salinus Comp., E. Omitted.
- Scammonii Comp. Proportion of Jalap slightly diminished. Dose, gr. x, which contain gr. v of Scammony.
- Pyrethrum, L. Omitted.
- Pyrola, E. D. Omitted.
- Pyroxylin. Added. Name for Gun Cotton for making Collodium. See p. 122.
- Quinæ Murias, D. Omitted.
- Quiniæ Sulphas. Present name for Quinæ Disulphas, L., and Quinæ Sulphas, E. D. The letter *i* is inserted to make the name correspond with *Atropia*, *Morphia*, etc.
- Rhamni Baccæ, E. Omitted.
- Succus, L. Omitted.
- Rosæ Oleum, E. D. Omitted.
- Sagapenum, L. Omitted.
- Salicis Cortex, E. Omitted.
- Santoninum. Added. For *round* worms. Dose, gr. ii every other night for three times, or gr. i two or three times a day or even oftener, for one day or two. See p. 123.

- Scammonii Radix. Added. For making the Resin of Scammony.
- Simaruba, E. D. Omitted.
- Sodæ Aqua Effervescens, E. Omitted.
- Arsenias. Added. For making Liquor Sodæ Arseniatis, gr. iv in fl. oz. i. Dose of the Liquor, ℥i to ℥v. See p. 124.
- Biboras, D. Name now excluded in favour of simple Borax.
- Chlorinatæ Liquor. Changed to Liquor Sodæ Chloratæ.
- et Potassæ Tartras. Present name for Sodæ Potassio-Tartras, Ph. L., and for Potassæ et Sodæ Tartras, Ph. E.
- Sulphas. Omitted.
- Solutions. See article on, p. 17.
- Spigelia Marylandica, E. Omitted.
- Spiritus Æthereus Oleosus, D. Omitted. See next article below.
- Ætheris. Present name for Spiritus Ætheris Sulphurici, Ph. E. It is not a perfect substitute for the Spiritus Ætheris Compositus, Ph. L., or for the Sp. Æthericus Oleosus, D., for both these preparations contain Oleum Æthereum, which is absent from the Spiritus Ætheris of the new Pharmacopœia, and alters therefore their flavour and perhaps their medicinal effects. Dose, ℥xxx to fʒi.
- Ætheris Compositus, L. Omitted. See Sp. Ætheris, above.
- Ætheris Nitrici. Name changed to Spiritus Ætheris Nitrosi. The mode of obtaining it is entirely changed, but its composition is supposed to be the same.
- Ætheris Nitrosi. The present name for Spiritus Ætheris Nitrici. Dose, ℥xxx to fʒi.

Spiritus Ætheris Sulphurici, E. Name changed to Spiritus Ætheris.

— Ammoniae, E. Omitted.

— Ammoniae Aromaticus. Differs in flavour from all preparations of this name in the former Pharmacopœias; for it contains no Cinnamon, which was ordered in the Ph. D., no Rosemary, ordered by the Ph. E., and neither Cinnamon nor Cloves, ordered by the Ph. L. It is much more agreeable than Ph. E., and does not become milky when mixed with water. Dose, \mathfrak{mxxx} to $\mathfrak{f\zeta i}$.

— Ammoniae Fœtidus, L. D. E. Omitted. The Tincture of Assafœtida is not a substitute, as it contains no stimulating alkali like Ammonia.

— Anisi, L. Omitted.

— Cajuputi. Added. One part of Oil of Cajuput in ten. Dose, $\mathfrak{m x}$ to $\mathfrak{m xxx}$.

— Camphoræ. One-eighth weaker than formerly.

— Carui, L. E. Omitted.

— Cassiæ, L. Omitted.

— Chloroformi. Added. One part of Chloroform in twenty. It is about half the strength generally attributed to Chloric Ether, for which it is intended as a substitute. Dose, $\mathfrak{m xv}$ to $\mathfrak{m xxx}$. A larger dose is often unpalatable.

— Cinnamomi, L. E. Omitted.

— Juniperi. Totally different from Spiritus Juniperi Comp., L. D. E., for it contains no Aromatic, but does contain about 95 times as much Oil of Juniper. 10 minims now contain one minim of oil, instead of nearly 2 fluid ounces being required as formerly. Dose, $\mathfrak{m x}$ to $\mathfrak{m xxx}$.

— Juniperi Comp., L. D. E. Omitted. See Spt. Juniperi above.

— Lavandulæ. Is now made from Oil of Lavender, instead of the fresh flowers.

Spiritus Lavandulæ Comp., E. Omitted by this name.
 Nearly resembles Tinctura Lavandulæ Comp.

— Menthæ Piperitæ. Identical with Essentia
 Menthæ Piperitæ, D. Contains about 47 times as
 much Oil of Peppermint as formerly in Ph. L. 10
 minims contain 1 minim of oil. Dose, $\mathfrak{m}\mathfrak{x}$ to
 $\mathfrak{m}\mathfrak{xxx}$.

— Menthæ viridis, L. Omitted.

— Myristicæ. Is identical with the old Essentia
 Myristicæ Moschatæ, D., and contains about 140
 times as much Oil of Nutmeg as the L. and E.
 Dose, $\mathfrak{m}\mathfrak{x}$ to $\mathfrak{m}\mathfrak{xxx}$.

— Pimentæ, L. E. Omitted.

— Pulegii, L. Omitted.

— Rosmarini. Identical with Essentia Rosmarini,
 Ph. D., and contains about 31 times as much Oil
 of Rosemary as formerly in Ph. L. 10 minims
 contain 1 minim of oil. Not much used internally.
 Dose, $\mathfrak{m}\mathfrak{x}$ to $\mathfrak{m}\mathfrak{xxx}$. See Formulæ, "Hair Wash."

Spongia, E. Omitted.

Stanni Pulvis, D. E. Omitted.

Staphisagria, L. E. Omitted.

Strychniæ Murias, D. Omitted.

Succini Oleum, D. Omitted.

Succus Conii. Added. A fluid form of Extract of
 Conium. Obtained by pressing the fresh Hemlock
 and adding to the juice a third of its bulk of spirit.
 Dose, $\mathfrak{m}\mathfrak{xxx}$ to $\mathfrak{m}\mathfrak{x}\mathfrak{l}$, equal to about gr. iii of ex-
 tract. See p. 126.

— Scoparii. Added. Similar preparation to the
 above. Dose, $\mathfrak{m}\mathfrak{x}\mathfrak{x}$ to $\mathfrak{f}\mathfrak{z}\mathfrak{i}$. See p. 126.

— Taraxaci. Added. Ditto. Dose, $\mathfrak{m}\mathfrak{xxx}$ to $\mathfrak{f}\mathfrak{z}\mathfrak{i}$.
 or more. See p. 127.

Sulphuris Iodidum, L. D. Omitted.

Suppositoria Acidi Tannici. Added. Each supposi-

tory weighs 14 grains and contains 2 grains of Tannin.

Suppositoria Morphiae. Each suppository weighs nearly 8 grains and contains $\frac{1}{4}$ grain of Muriate of Morphia.

Syrupus Aceti, E. Omitted.

— Acidi Citrici, D. Omitted.

— Althææ, L. E. Omitted.

— Aurantii. Now made from Tincture of Orange-peel mixed with Syrup, instead of from the peel direct.

— Aurantii Floris. Added. Made from Orange-flower Water. A very fragrant syrup.

— Cocci, L. Omitted.

— Croci, L. D. E. Omitted.

— Ferri Phosphatis. Added. One grain of Phosphate of Iron to the fluid drachm of the Syrup. Dose, fʒi to fʒii. See p. 93.

— Ipecacuanhæ, E. Omitted.

— Limonis. More strongly flavoured than formerly, as it contains Oil of Lemon from the peel in addition to the Lemon-juice.

— Morphiae Acetatis, D. Omitted.

— Morphiae Muriatis, D. Omitted.

— Rhamni, L. E. Omitted.

— Sarzæ, L. D. E. Omitted.

— Scillæ. Added. About half the strength of Oxymel of Squill. Dose, fʒi to fʒii.

— Sennæ. About four times as strong as the old Syrup, and now flavoured with Coriander instead of Fennel. Dose, fʒi to fl. oz. ss ; fʒii equal ʒss of Senna.

— Syrupus Violæ, L. E. Omitted.

Terebinthina Americana or Vulgaris. Omitted.

— Chia, L. E. Omitted.

Terebinthina Veneta. Omitted.

Tinctura Aconiti is now only one-third the strength of the Ph. L., one-fourth that of the Ph. D., and less than one-fifth that of Fleming's tincture. The dose prescribed by physicians varies considerably, but it is advisable that the dose of this tincture should not exceed $\mathfrak{m}\nu$ to $\mathfrak{m}x$. If beyond this dose, it should be very carefully watched, and an interval of at least six hours should elapse before it is repeated.

— *Aloes Comp.*, L. Omitted.

— *Aloes et Myrrhæ*, E. Omitted.

— *Ammoniac Comp.*, L. (*Eau de Luce*.) Omitted.

— *Arnica (Radicis)*. Added. Hitherto the tincture has generally been made from the flowers. Dose, $\mathfrak{m}xxx$, twice a day. Fl. oz. i in Oi lotion. See p. 46.

— *Belladonnæ*. Only about half the strength of the Ph. L. and D. Dose, $\mathfrak{m}xx$ to $\mathfrak{m}xxx$.

— *Bucco*. Present name for *Tinct. Buchu*. Dose, f ʒi.

— *Buchu*. Name changed to *Tinctura Bucco*.

— *Calumbæ*. Nearly same strength as Ph. D., double that of L.

— *Camphoræ*, D. E. Name changed to *Spiritus Camphoræ*.

— *Camphoræ Composita*. Name changed to *Tinct. Camphoræ eum Opio*.

— *Camphoræ eum Opio*. Present name for *Tinct. Camphor. Comp.* It contains about one-ninth more Opium and Benzoic Acid than formerly; the proportion of both is however still so small that the dose will probably remain unchanged. Dose, $\mathfrak{m}xxx$ to f ʒi or f ʒii.

— *Capsici*. Only half strength of D. Dose, $\mathfrak{m}xxx$

in fl. oz. i, is nearly as much as the mouth can bear.

Tinctura Cardamomi, E. Omitted.

— Cardamomi Comp. Quantity of Cardamoms slightly increased, and the Raisins much diminished.

Dose, \mathfrak{mxxx} to $\mathfrak{f\zeta ii}$.

— Cassiæ, E. Omitted.

— Castorei. One-fifth weaker than formerly. Dose, $\mathfrak{f\zeta i}$ to $\mathfrak{f\zeta ii}$.

— Castorei Ammoniata, E. Omitted.

— Catechu. Present name for Tinet. Catechu Comp. One-fifth more Catechu than the old Dublin form, and one-third more than L. and E. Dose, \mathfrak{mxxx} to $\mathfrak{f\zeta i}$.

— Catechu Comp. Name changed to Tinet. Catechu. See above.

— Cinnamomi. About one-third stronger than formerly.

— Cinnamomi Comp., L. D. E. Omitted.

— Cocci. One-fourth stronger than formerly.

— Colchici Comp., L. (Aromatic.) Omitted.

— Conii. Changed to Tinet. Conii Fructus. The old tincture made from the leaves is now omitted, and a new one is introduced made from the fruit. See next article below. See p. 85.

— Conii Fructus. Made from the fruit instead of the leaves. Is nominally the same strength as the old Tinet. Conii, but is probably about half as strong again; or is at any rate considerably stronger than the old one. Dose, \mathfrak{mxxx} . See p. 85.

— Croci. Half the strength of D. Same as E. Only used for colouring, $\mathfrak{f\zeta i}$ for an fl. oz. viii mixture.

— Cubebæ L. D. Omitted.

— Cuspariæ, E. Omitted.

- Tinctura Digitalis. Same strength as E. ; one-fourth stronger than Ph. L. Dose, \mathfrak{mxxx} to $\mathfrak{f}\mathfrak{z}\mathfrak{i}$. or fl. oz. ss.
- Ergotæ. One-fourth stronger than formerly. Dose, \mathfrak{mxxx} to $\mathfrak{f}\mathfrak{z}\mathfrak{i}$.
- Ergotæ Ætherca, L. Omitted.
- Ferri Acetatis, D. Omitted.
- Ferri Perchloridi. New name for the old Tinct. Ferri Sesquichloridi. It is the same strength as the old London Tincture, but only one-fourth the strength of the Dublin Tinct. Ferri Sesquichloridi. Dose, $\mathfrak{m}\mathfrak{x}$ to \mathfrak{mxxx} .
- Ferri Sesquichloridi. Name changed to Tinct. Ferri Perchloridi. Strength unchanged as regards the London tincture, but only one-fourth the strength of the Dublin Tinctura Ferri Sesquichloridi. Dose, $\mathfrak{m}\mathfrak{x}$ to \mathfrak{mxxx} .
- Gentianæ Comp. Very slightly stronger than formerly. Dose, $\mathfrak{f}\mathfrak{z}\mathfrak{i}$ to fl. oz. ss.
- Guaiaci, L. E. Omitted.
- Guaiaci Ammoniatæ. One-eighth stronger than formerly. Dose, \mathfrak{mxxx} .
- Hellebori, L. Omitted.
- Iodi. New name for Tinctura Iodinii Comp., L. and D., of which it is intended to be the representative, but it contains only one-fourth the quantity of Iodide of Potassium, though it has the old quantity of Iodine. (It has no practical resemblance to the Tinctura Iodinei, Ph. E.) The dose must be materially altered—nearly double that of the L. and D. tincture. Dose, gtt. ii to gtt. x, or sometimes \mathfrak{mxxx} .
- Iodinei, E. Omitted. There is nothing which practically resembles it in the new Pharmacopœia.
- Iodinii Comp. Name changed to Tinctura Iodi, and composition considerably altered. See Tinct. Iodi, above.

Tinctura Jalapæ. Same strength as Ph. L. About one-third weaker than Ph. E. and D. Dose, fʒi to ℥. oz. ss.

— Kino. One-eighth stronger than formerly.

— Krameriæ. Only two-thirds old strength.

— Lactucarii, D. Omitted.

— Lavandulæ Comp. Old London form. Only about half the strength of D., and contains no Cloves. Dose, ℥xxx to fʒii.

— Limonis. Only half Dublin strength. Half as strong again as L.

— Matico, D. Omitted.

— Myrrhæ. Nearly twice the strength of Ph. L. About one-third stronger than E., and one-fifth stronger than D. It is chiefly used for gargles, and the dose must be in accordance with the altered strength. Dose, ℥xv to ℥xxx.

— Nucis Vomiciæ. About one-third the strength. (2 to 5) of the Ph. D. of 1826. The dose must therefore be nearly three times what the prescriber generally orders. ℥xv to ℥xxx: ℥xi contain gr. i of powdered Nux Vomica seed.

— Opii. This tincture is one-twelfth weaker than formerly in consequence of the change in the weight of the ounce, and it is also still further weakened, though to a slight and uncertain amount, by the addition of an undefined quantity of spirit in order to make the result fill a pint. The dose ought to be slightly increased to make up for the change; but in practice it is probable that it will remain unaltered.

— Opii Ammoniata, E. Omitted.

— Opii Camphorata, D. E. Name omitted. The preparation corresponds very closely with Tinctura Camphoræ cum Opio.

- Tinctura Quassiae, E. Omitted.
- Quassiae Comp., E. Omitted.
- Quinae Comp. Now called Tinctura Quinae Comp.
- Quinae Comp. Present name for Tinet. Quinae Comp. Dose, fʒi, containing gr. i of Quinine.
- Rhei differs essentially from Tinet. Rhei, Ph. E., in flavour, and cannot be substituted for it in dispensing. The present tincture is intended as a substitute for Tinct. Rhei Comp., L. and D., but it contains one-third more Rhubarb and Saffron than formerly, and is flavoured with Cardamoms and Coriander instead of Ginger and Liquorice. The taste will therefore differ considerably from that of the old tincture. Dose, fʒi to fl. oz. ss or fl. oz. i.
- Rhei et Aloes, E. Omitted.
- Rhei et Gentianae, D. Omitted.
- Sabinæ. Added. Dose, ʒxxx.
- Senegæ. Added. Dose, ʒxxx to fʒi.
- Sennæ. Present name for Tinetura Sennæ Comp., L. Contains about one-fourth more Senna and twice as much Caraway as formerly, and is flavoured with Coriander instead of Cardamoms. Dose, fʒi to fl. oz. ss.
- Serpentariæ. About one-third stronger than formerly. Dose, ʒxxx to fʒi.
- Tolutana. About twice as strong as formerly. Dose, ʒxxx.
- Valerianæ Ammoniata. Present name for Tinet. Valerianæ Comp. Differs from the Ph. E. in containing spices. Dose, ʒxxx.
- Zingiberis. Twice the strength of the Ph. L., two-thirds the strength of Ph. D. Dose, ʒxxx to fʒi.
- Tormentilla, L. Omitted.

- Trochisci Acaciæ, E. Omitted.
- Acidi Tannici. Added. Gr. $\frac{1}{2}$ in each lozenge.
- Acidi Tartarici, E. Omitted.
- Bismuthi. Added. Gr. ii of Nitras Bismuthi in each lozenge.
- Catechu. Added. About gr. $1\frac{1}{4}$ Catechu in each, and a flavour of Capsicum.
- Cretæ, E. Omitted.
- Glycyrrhizæ, E. Omitted.
- Lactucarii, E. Omitted.
- Magnesiæ, E. Omitted.
- Morphizæ. About gr. $\frac{1}{36}$ of Morphizæ Murias in each.
- Morphizæ et Ipecacuanhæ. Added. About gr. $\frac{1}{36}$ Morphizæ Mur. and gr. $\frac{1}{12}$ Ipecac. in each.
- Opii. Added. About gr. $\frac{1}{16}$ Ext. Opii in each.
- Sodæ Bicarbonatis, E. Omitted.
- Unguentum Aconitiæ. Added. Gr. i Aconitia in \mathfrak{z} i. For use, \mathfrak{z} ss at a time.
- Æruginis, E. Omitted.
- Antimonii Potassio-tartratis. Name changed to Ung. Antimonii Tartarati. Strength as before.
- Antimonii Tartarati. Present name of Ung. Antim. Potass. Tart. Same strength as L. Twice as strong as D.
- Atropiæ. Added. Gr. i Atropia in \mathfrak{z} i. For use, \mathfrak{z} ss at a time. See p. 46.
- Belladonnæ. One-third stronger than formerly. Gr. x of Ext. Belladon. to \mathfrak{z} i of Lard.
- Calomelanos. 80 grains in oz. i. New.
- Cantharidis. Formerly contained a little Resin Ointment, which is now omitted.
- Ceræ Albæ, D. Omitted.
- Citrinum, E. Name altered. Nearly resembles Ung. Hydrargyri Nitratis.

Unguentum Conii, L. Omitted.

— Creasoti. Twice the strength of Ph. L. Three times the strength of Ph. E.; fʒi in oz. i.

— Cupri Subacetatis, D. Omitted.

— Elemi. Now contains no Turpentine, which used to be present, and it is therefore less stimulating than formerly.

— Gallæ Compositum. Name changed to Ung. Gallæ cum Opio.

— Gallæ cum Opio. About twice as much Opium as formerly. ʒss of Opium in oz. i.

— Hydrargyri Ammoniaci. New name for Ung. Hydrarg. Ammonio-Chloridi, and half as strong again as formerly.

— Hydrargyri Ammonio-Chloridi. Name changed to Ung. Hydrargyri Ammoniaci.

— Hydrargyri Iodidi, L. Omitted.

— Hydrargyri Iodidi Rubri. Gr. xvi in oz. i. Only about one-fourth the strength of the old Dublin Ointment.

— Hydrargyri Nitratis Mitius, L. Omitted.

— Hydrargyri Nitrico-Oxidi, L. Name changed to the following.

— Hydrargyri Oxidi Rubri. Present name for Ung. Hydrarg. Nitr. Ox. About one-seventh stronger than formerly.

— Infusi Cantharidis, E. Omitted.

— Iodi Comp. Present name for Ung. Iodini Comp., but contains only about half the old quantity of Iodide of Potassium.

— Iodinei, E. Nearly identical with Ung. Iodi Comp. above.

— Iodini Comp., L. Now called Ung. Iodi Comp. See above.

— Opii, L. Omitted.

- Unguentum Pieis. Omitted.
- Pieis Liquidæ, L. D. E. Omitted.
- Plumbi Acetatis, D. E.
- Plumbi Carbonatis. About twice as much as E.; about $\frac{2}{3}$ the strength of Ph. D.
- Plumbi Compositum, L. Omitted.
- Plumbi Subacetatis. Added. Nearly f $\frac{3}{4}$ ss of Liq. Plumbi in oz. i of the ointment.
- Plumbi Iodidi, L. D. Omitted.
- Potassii Iodidi. About one-seventh stronger than formerly.
- Præcipitati Albi. Now called Ung. Hydrargyri Ammoniaci.
- Sambuei, L. Omitted.
- Sulphuris. Same as D. and E. Only half the London quantity of Sulphur.
- Sulphuris Comp., L. Omitted.
- Sulphuris Iodidi, L. Omitted.
- Terebinthinæ. Added. One-half is Oil of Turpentine. A more stimulant form than formerly o Resin Ointment. See p. 35.
- Veratriæ. Added. Gr. i in $\frac{3}{4}$ i. Frequently causes severe smarting pain for a time. Use, $\frac{3}{4}$ ss or $\frac{3}{4}$ i, at a time.
- Vinum Aloes. Same as Ph. E. One-third weaker than Ph. L., and contains no Canella. Dose, f $\frac{3}{4}$ i to fl. oz. ss.
- Antimoniale. Present name for Vin. Antim. Potass. Tart. Gr. ii in fl. oz. i. Old strength. Dose, as a nauseant diaphoretic, m $\frac{xxx}{i}$; as an emetic, f $\frac{3}{4}$ i every fifteen minutes.
- Ferri. Entirely different from Ph. L. Is now made by dissolving Tartrate of Iron in Sherry Wine. Dose, f $\frac{3}{4}$ i to fl. oz. i.
- Gentianæ, E. Omitted.

Vinum Ipecacuanhæ. About one-fifth weaker than formerly. Dose, \mathfrak{m} xxx to fʒi.

—— Opii. Same as Ph. E., but differs essentially from L. and D., in containing no Spices. As a stimulant opiate for local application in Chronic Ophthalmia, it cannot be substituted for the old Vin. Opii, L. The strength is nearly the same as that of Tinct. Opii. Dose, same as that of Laudanum.

—— Rhei, D. E. Omitted.

—— Tabaci, E. Omitted.

—— Veratri, L. Omitted.

Viola, L. Omitted.

Table of Narcotic Preparations in the British Pharmacopœia, their Strength and Doses.

Acid. Hydrocyanic. Dilut. 2 per cent. Dose miii to mv.

Aconitia. Not to be used internally.

Aconitiæ Unguentum. Gr. i in fl. oz. i. For usc, gr. xx to gr. xxx. To be applied externally.

Aconitum. *The Leaves and Flowering Tops* yield.

— Extractum. Dose, gr. i or gr. ii. To be very carefully watched.

Aconiti Radix yields.

— Linimentum. 1 oz. of Root, and 20 gr. of Camphor, in fl. oz. i. About 8 times as strong as the tincture. For usc, mxxx, applied by a camel's-hair pencil. See p. 31.

— Tinctura. Nearly 60 grains of Root in fl. oz. i. About $\frac{1}{3}$ strength of Ph. L. $\frac{1}{4}$ strength of Ph. D. Dose, mv to mx, and at least six hours between the doses. If increased beyond this dose, to be very carefully watched.

Aqua Camphoræ. About gr. i in fl. oz. i. Dose, fl. oz. i to fl. oz. ii.

— Laurocerasi. Of variable and uncertain strength. Intended as a substitute for Prussic Acid. Dose, mxxx to f̄i.

Atropiæ Liquor. Gr. iv in fl. oz. i.

For usc, if applied to the eye, gtt. i. Not used internally.

Atropiæ Unguentum. Gr. i in ʒi . Use, gr. xxx, externally. See p. 46.

Belladonna. *The Leaves* yield

Emplastrum. Extract. Belladonnæ forms about half the plaster.

Extractum. Gr. $\frac{1}{8}$ to gr. ss. I have seen violent effects follow the last-named dose.

Tinctura. Dose, mxx to mxxx .

Unguentum. Extract. Belladonnæ forms about one-sixth of the Ointment.

— *Radix*. Yields Atropia and

Linimentum. oz. i. Belladonna root, and ʒi of Camphor in fl. oz. i. Use ʒss to ʒi . Applied externally, by a camel's-hair pencil. See p. 32.

Cannabis Indica.

— Indiæ Extractum. Dose, gr. ss to gr. i or more.

— Indiæ Tinctura. Dose mv to mxv . It is very seldom that a larger dose gives relief, if mxv have failed. See p. 190.

Chloroformi Linimentum. Half and half Chloroform and Camphor Liniment. Very stimulating, and painful when first applied to a tender skin.

— Spiritus. 1 part in 20. Dose, mxx to mxxx or more. A larger quantity is often unpalatable.

Conium. *The Leaves* yield

— Cataplasma. 1 oz. of powdered Hemlock, in 14 oz.

— Extractum. Dose, gr. ii to gr. iv.

— Succus. Dose, mxi are about equal to gr. iii of Extract. ss. 126.

Conii Fructus Tinctura. Nominally the same strength as the old Tinctura Conii. Has to be tested by experience, but is probably much stronger. One-half as strong again. Dose, mxx to mxxx .

Digitalinum. The active principle of Digitalis. Dose, gr. $\frac{1}{100}$ to $\frac{1}{50}$.

Digitalis Infusum. Same as L. Half strength of E. and D. Dose, fʒii to fl. oz. ss.

— *Tinctura.* One-fourth stronger than Ph. L. Same strength as E. Dose, ʒxxx. But very large doses, as high as fl. oz. ss have been given lately.

Hyoscyamus. The Leaves.

— *Extractum.* Dose, gr. ii to gr. iv.

— *Tinctura.* ʒxxx to fʒi.

— *Pil. Colocyntidis et Hyoscyami.* Gr. i of *Hyoscyam.* Ext. in gr. iii. Dose, gr. iii to gr. vi.

Morphiæ Hydrochloras. Dose, gr. $\frac{1}{8}$ to gr. ss.

— — *Liquor.* Same strength as D. and E.

Half strength of L. Dose, ʒx to fʒi, according to the object in view; or about double that of *Laudanum.* Gr. ss in fʒi.

— — *Suppositoria.* Gr. $\frac{1}{4}$ in each.

— — *Trochisci.* About gr. $\frac{1}{36}$ in each.

— — *et Ipecac. Trochis.* About gr. $\frac{1}{36}$ *Morph.*

Mur., and gr. $\frac{1}{12}$ *Ipecac.* in each.

Opium. Dose, gr. $\frac{1}{4}$ to gr. ii.

Opii Emplastrum. One part of powdered *Opium* in ten.

— *Extractum.* This ought theoretically to be much stronger than *Opium*, but practically the dose is the same, gr. $\frac{1}{4}$ to gr. ii.

— *Extractum Liquidum.* About the same strength as *Laudanum.* Dose, ʒv to ʒxxx or more. A substitute for *Battley.*

— *Enema.* Twice strength of Ph. L.; fʒss in fl. oz. ii.

— *Linimentum.* Half and half *Laudanum* and *Soap Liniment.*

— *Pilula.* Gr. i in gr. v.

— *Pilula Plumbi cum Opio.* Gr. ss in a 4 grain pill.

Opii Pulvis Cretæ Aromaticus cum Opio. Gr. i in ℥ii.

— *Pulvis Ipecacuanhæ cum Opio.* Gr. i in gr. x.

— *Pulvis Kino cum Opio.* Gr. i in ℥i.

— *Tinctura Camphoræ cum Opio.* Gr. ii in fl. oz. i.

Dose, ℥xxx to fʒi or fʒii.

— *Tinctura.* About one-twelfth weaker than formerly. About gr. i in ℥xv. Dose, ℥v to ℥xxx or more.

— *Trochisci.* Gr. $\frac{1}{10}$ Extr. of Opium in ach.

— *Unguent.* Gallæ cum Opio, ʒss in oz. i.

— *Vinum.* Same strength as the Tincture. Dose, ℥v to ℥xxx or more. Not much used internally. When applied to the eye, it is generally too stimulating when undiluted, and should be mixed with an equal part of water or Camphor water. Contains no spices now. See p. 168.

Stramonii Folia. Only used for smoking.

— *Semina.* Not used internally. Only employed to make the following preparation.

— *Seminum Extractum.* A very hazardous remedy. Dose, gr. $\frac{1}{8}$ to gr. $\frac{1}{4}$. I have seen alarming effects produced in two instances by gr. $\frac{1}{4}$.

— *Seminum Tinctura.* Dose, ℥xxx.

Tabaci Enema. ℥i in fl. oz. viii.

Veratriæ Unguentum. Gr. i. in ʒi. For use, gr. xxx. to ʒi externally. Often causes severe pain at first.

Veratrum Viride. Not officinal. Dose, gtt. vi or gtt. viii of Norwood's Tincture every two, three, or four hours, until vomiting or depression comes on. See p. 128.

— *Viridis Extract.* Dose, gr. ii. or gr. iii. See p. 129.

Strychnia and Nux Vomica are not Narcotics, but they are added to this list.

Strychniæ gr. $\frac{1}{32}$ to gr. $\frac{1}{8}$. Not more than twice a day. The latter dose must be very carefully watched.

— Liquor. Gr. i in f ʒii. Dose, ʒiv (or gr. $\frac{1}{30}$) to ʒviii (gr. $\frac{1}{15}$), twice a day.

Nux Vomica Extract. Dose, gr. $\frac{1}{4}$ to gr. ss. A larger dose is sometimes given.

— Vomicæ Tinctura. About $\frac{1}{3}$ former strength. Dose, ʒxv to ʒxxx. ʒxi equal gr. i of powdered Nux Vomica Seed.

General Rules for Prescribing.

THE following rules are taken, with a few additions and alterations, from the admirable directions by Dr. Paris in his 'Pharmaeologia,' and from 'L'Art de Formuler,' by MM. Trousseau and Reveil. The work by Dr. Paris cannot be too strongly urged upon the attention of students.

1st. Let the prescription be written with such care and exactness that no mistake in dispensing it may arise from the fault of the prescriber.

The faults most liable to be committed are:—

Illegible Writing. The use of Contractions for the names of Substances which have some resemblance in name, but are different in strength or nature; e.g. \mathcal{R} Podophyl. gr. ss.—This would apply equally well to Podophylline Root, and the Resin, both of which are now officinal. The resin has long been known by the name of Podophylline, whilst the root is now called simply Podophyllum.

\mathcal{R} Pulv. Strychn. gr. ii.—A fatal case of poisoning arose from this prescription a few years since. The prescriber meant powdered Nux Vomica Seed (Strychnos Nux Vomica), but the dispenser understood Strychnine, and gave it.

The Careless use of Symbols which nearly resemble each other.—It is often a mere matter of conjecture whether the prescriber means a drachm, $\mathfrak{z}\text{i}$, or an ounce, $\mathfrak{z}\text{i}$, the symbols being so carelessly written. It

is therefore a great improvement in the Ph. Br. that the symbol oz. instead of \mathfrak{z} is ordered to be used for ounce.

2nd. Let the directions be written in legible English.

They are intended for the guidance of the patient ; and although it may be desirable that the ingredients should not be known, the directions should always be intelligible.

3rd. Let the prescription be headed by a description of what it is to be ; *e.g.*

The Antispasmodic Draught.

The Aperient Pill.

In looking over the prescriptions in order to select the proper one to be sent again to the druggist, this simple plan will often save the patient, and the prescriber also, a great deal of trouble.

4th. Endeavour always to have a clear conception of the object in view in writing the prescription, and of the purpose to be accomplished by each ingredient ordered. This will be promoted by writing the prescription in such an order that the most important ingredient shall be put down first, and the others added, according to the object of the prescriber in giving them.

5th. It is extremely desirable that young practitioners should accustom themselves to prescribing single doses, rather than the whole quantity requisite for dozens of pills, or large bottles of liquid medicines ; in order that they may be thoroughly aware of the real quantity per dose of each ingredient that their patients are taking. When the dose has become well fixed in the memory by this means they may then, with advantage, order the quantities for the eight-ounce mixture, or for making the stock of

pills; but they should at first familiarize themselves with the dose to be taken each time.

6th. If the prescriber is not thoroughly aware of the strength of officinal solutions, he should order the quantity of the solid ingredient he wishes for. An eminent physician gave a prescription for ten minim doses of Liq. Hydrarg. Biehlor., Ph. L., under the impression that he was ordering a full dose of corrosive sublimate; and was surprised to find that he was only ordering about $\frac{1}{100}$ of a grain per dose. This rule is especially necessary at the present time; as several alterations have been made in the strength of important solutions, such as that of Muriate of Morphia; and other solutions of great importance have been introduced, such as that of Strychnine and of Atropia, etc.

7th. Avoid unnecessary complexity in the prescription, and only order what is really considered to be important.

The following general laws as to combining medicines have been established by the general experience of the profession.

Remedies in a very concentrated form frequently act less beneficially than when divided and diluted by some comparatively inert substance, e.g. Concentrated Diuretics do not act so favourably as when diluted by a good deal of some single fluid. Quinine sometimes irritates the stomach, though Powdered Bark can be retained; and the medicinal effects of the Quinine are not equal in amount to those of the Bark from which it is obtained. Iodine, in the form of pills, acts as an irritant; but when diluted with starch, after the French fashion, or when given in milk, it seldom produces any unpleasant effect of this kind.

Two or more remedies of the same kind when com-

bined together, act more certainly, and at the same time more mildly and in smaller doses, than when given separately.—Hence it is the practice of physicians to prescribe two or more purgatives at the same time; *e.g.* Pil. Rhei Comp., which contains Rhubarb, Aloes, and Soap, instead of either of these purgatives alone.

Two or more diuretics are generally combined on the same principle, *e.g.* Squills and Spirits of Nitre are added to Decoction of Broom, and the patient is desired to drink freely of Barley Water.

Medicines which are intended to produce some evacuation from the system, e.g. purgatives and diuretics, should generally be given some time before a meal; but those which are intended to produce no sensible evacuation, such as tonics, and alteratives like Iodine and Arsenic, should generally be given after a meal, before the whole of the food is likely to be digested.

Paris's rules for constructing a prescription.—In accordance with the above laws, Dr. Paris laid down the following directions for the general construction of a prescription, which cannot be too carefully remembered by the young prescriber.

Select the principal and most important ingredient, and call it the *Basis* of the prescription.

Next consider what may be advantageously added to promote its action, and call this the *Adjuvant*. This may be either another medicine possessing the same general properties as the Basis; or it may be something which is calculated to promote its activity by rendering it more soluble, or by assisting its action upon the system; *e.g.* Soap or Alkalies are added to Aloes to promote their solubility,* and Lemon-juice or

* The term *Intermedium* is applied by Trousscau and Reveil to an ingredient which answers such a purpose as

some other Acid is sometimes given to assist the action of an emetic by detaching the mucous secretion from the stomach, which prevents the emetic from producing its desired effect.

Consider whether there is any unpleasant effect to be prevented, and add something for this purpose, to be called the *Corrigent*.

It is often desirable to add something for the sake of distinction or appearance, by colouring a mixture or an embrocation; or for the sake of flavour, by prescribing a Syrup or other palatable ingredient. There is no term in general use to express this object; and in the following formulæ it will be indicated by the abbreviation Gr. Coloris or Gr. Saporis (Gratiâ Coloris or Gratiâ Saporis).

Then consider what must be used to make the remedies into the desired form, *e.g.* pill or mixture, and call this the *Vehicle* or *Excipient*. Paris's term is the *Constituens*, but it is not so frequently adopted as "Vehicle."

One or two examples in illustration of the above rules will make their object perfectly clear; and some of the formulæ in the following section will be written upon Paris's plan, in order that it may be more perfectly impressed upon the student's mind.

Pil. Cambogiæ Comp.; *Ph. Br.*, contains Camboge, Aloes, Aromatic Powder, Soap, and Syrup.

The Camboge is an active purgative, and is the *Basis* of the prescription, but it only acts upon the small intestines; and therefore Aloes, which acts upon the large ones, is added as an *Adjuvant*. Camboge is liable to produce griping, and therefore Aromatic Pow-

this. It has not been generally adopted by writers on *Materia Medica*, but it is a useful one.

der is added as a *Corrigent*. Aloes is very slowly dissolved, and therefore Soap is used to render it more soluble. It may be called an *Excipient* or *Adjuvant*, or *Intermedium*. And lastly, as all these ingredients are solid, Syrup is ordered as a *Vehicle* or *Excipient*, in order that they may be made into a pill.

Mistura Creasoti, Ph. Br., contains Creasote, Aee-tie Acid, Spirit of Juniper, Syrup and Water. Here Creasote is the important ingredient, the *Basis*; but it is only slightly soluble in water, and therefore Aee-tie Acid is added to promote its solubility, and is an *Excipient* or *Intermedium*. The Spirit of Juniper is a *Corrigent*, added to cover the unpleasant taste of the Creasote; and the Syrup may also be called by the same title; or it may be reckoned an *Intermedium*, to suspend the Creasote in the mixture. Lastly, the water is the *Vehicle*.



Formulæ illustrative of the Alterations required in prescribing by the new or altered Medicines and Preparations, and the Symbols now employed in the British Pharmacopœia; and illustrative also of Paris's Rules for constructing a prescription.

The following Formulæ embrace most of the new medicines, or the important alterations in the old ones, introduced by the new Pharmacopœia. The words printed in italics show a change of name, or that the substance is newly introduced.

A Febrifuge Mixture.

- ℞ Liqueur. Ammon. Acet. fl. drs. v. Basis.
 Syrupi Croci fl. dr. i. Gr. Coloris.
Aquæ Camphoræ ad fl. oz. viii. Vehiele. M.
-

Diuretic Mixture.

- ℞ Spiritus Ætheris Nitrosi fl. drs. iii. Basis.
 Spiritus Juniperi fl. drs. ii. Adjuvant.
 Syrupi Scillæ fl. oz. i. Adjuvant.
 Decoeti Scoparii ad fl. oz. viii. Vehiele. M.
-

The Diuretic Pill.

- ℞ *Digitalini* gr. $\frac{1}{100}$ or gr. $\frac{1}{50}$. Basis.
Scillæ gr. ii. Adjuvant.
Extracti Taraxaci. Excipient. Q. s. ut ft. pil.
 Mitte xii. One pill to be taken three times a day.
-

Tonic Mixture for Tic-Douloureux.

- ℞ *Quiniæ Sulphatis* gr. xii. Basis.
Infusi Rosæ Acidæ ad fl. oz. viii. Vehicle.
Tinct. Aconiti min. xl. Adjuvant.
Spirit. Chloroformi fl. drs. iii. Gr. Saporis. M.
 Two tablespoonfuls to be taken every eight hours.
-

Tonic Mixture when Quinine is indicated but cannot be used because it produces Headache.

- ℞ *Bebericæ Sulphatis* gr. viii to gr. xvi or gr. xxiv.
 Basis.
Acidæ Sulphurici Diluti fl. dr. i. Intermedium.
Syrupi Aurantii Floris fl. oz. i. Gr. Saporis.
Aquæ fl. oz. viii. Excipient. M.
-

The Ointment for the Face in Tic-Douloureux.

- ℞ *Ung. Aconitiæ* gr. lx (or 3i).
 One-half to be spread upon the face at a time. Or:
 ℞ *Ung. Veratriæ* gr. lx (or 3i).
 The whole to be used at once.

Note.—*Veratria* is a much less powerful anodyne than *Aconitia*. In using an ointment of the same

strength (gr. i in ʒi), it is therefore necessary to employ a larger quantity of the ointment.

The Anodyne Liniment for the Face.

℞ *Linimenti Aconiti* fl. drs. ii.

Or: *Linimenti Belladonnæ* fl. drs. ii.

About one-quarter to be *painted* upon the painful part by a camel's-hair pencil, and repeated, if necessary, in six hours.

Or *Linim. Aconiti* or *Belladon.* fl. drs. ii.

Linim. Saponis or *Glycerinæ* fl. drs. vi. M.

Dose.—One quarter to be *rubbed* upon the painful part, which may be done by the aid of the Soap or Glycerine.

The Anodyne Embrocation for the Loins.

℞ *Linimenti Chloroformi* fl. oz. i.

To be rubbed for ten or fifteen minutes upon the loins. The difference in the directions here given arises from the fact that the *Lin. Aconiti* and *Lin. Belladonnæ* are spirituous solutions, and cannot be rubbed upon the skin, whilst the *Lin. Chloroformi* is an oily one, and friction can therefore be employed.

The Counter-irritant Iodine Application.

℞ *Linimenti Iodii* fl. dr. i.

To be painted upon the affected part.

The Absorbent Iodine Application.

℞ Tinct. Iodi fl. oz. i.

To be applied freely over the scrotum. The difference in the quantity ordered, and in the directions, arises from the circumstance that the Liniment is about nine times as strong as the Tincture.

The Iodine Drops.

℞ Tinct. Iodi fl. oz. ss.

Five or ten drops to be taken three times a day in milk, which covers the taste of the Iodine.

The Blistering Liquid.

℞ *Linimenti Cantharidis* fl. drs. ii.

The part to be blistered is to be painted with this liquid by a camel's-hair pencil, and as soon as dry it is to be painted a second or third time, if the skin is soft or recently shaved, but a fifth or sixth time if the skin is thick. *Note.* This Liniment contains so much Ether that it quickly evaporates.

The Stimulant Embrocation for the Chest.

℞ *Linimenti Terebinthinæ Acetici* fl. oz. iv.

To be rubbed upon the upper part of the chest every night, until the skin becomes tender.

This embrocation was introduced many years since by Dr. Barlow at Guy's Hospital, for use in the early stage of consumption, and to render the patient less liable to take cold.

The Cough Mixture.

- ℞ *Syrupi Scillæ* fl. oz. i (intended as a substitute for Acet. Scillæ and Oxymel Scillæ, both omitted from the Ph. Br.; but it is only about half their strength). Basis.
Spiritus Pyroxylici Rectificati (medicinal naphtha), fl. drs. iii. Adjuvant.
Tinct. Conii Fructus fl. oz. ss. Adjuvant.
Tinct. Camphoræ eum Opio fl. oz. i. Adjuvant.
Misturæ Amygdalæ ad fl. oz. viii. Vehicle. M.
 A tablespoonful for a dose.
-

For Chronic Bronchitis, or for Catarrh of the Bladder.

- ℞ *Ammoniæ Benzoatis* gr. cxx (3ii) or gr. ecc (3v).
Tinct. Camphoræ eum Opio fl. oz. ss.
Infusi Senegæ fl. oz. viiss. M. et ft. mistura.
 Two tablespoonfuls (*i.e.* gr. xv to nearly 3ii per dose) to be taken three times a day.
Note.—The inconvenience of using Roman figures for such numbers as the above is sufficiently apparent.
-

Or the following, for Catarrh of the Bladder.

- ℞ *Extracti Pareiræ Liquidum* fl. oz. iv.
 A teaspoonful (*i.e.* 3i of the root) three or four times a day in water. To be continued for a considerable period.
-

For Sloughing Mouth or offensive Alvine Evacuations.

- ℞ *Liquor. Potassæ Permanganatis* fl. oz. i.
 15 drops (gr. $\frac{1}{8}$) or 30 drops (gr. $\frac{1}{4}$) to be mixed

with two or three tablespoonfuls of water, and used frequently for rinsing the mouth or swallowing, according to the nature of the ease.

This solution quickly spoils when exposed to the air. It is therefore best to mix it at the time of using it, as here directed.

The Nervine Tonic.

℞ *Liquor. Strychniæ* fl. drs. ii; ℥ dose m v,
i.e. gr. $\frac{1}{24}$.
Tinet. Aurantii fl. drs. x; „ m xxv.
Syrupi Aurant. Flor. fl. oz. iss; „ fl. dr. ss.
 M.

A teaspoonful to be taken two or three times a day until a bottleful is taken, unless spasmodic twitchings occur earlier than this.

The Stomachic Powder.

℞ *Bismuthi Albi* gr. v.
Magnes. Carbonatis gr. x.
Pulv. Rhei gr. iii. M. et ft. pulvis.

To be taken about an hour before dinner.

Note.—If no comment is made in ordering *Magnesia* or *Carbonate of Magnesia*, the *Pharmæopœia* now directs that the heavy preparations shall be dispensed. If the light ones are intended, they must be prescribed as *Magnesia Levis*, or *Magnes. Carbon. Levis*. The light *Magnesia* is ordered in the *Pharmæopœia* for making *Pulv. Rhei Comp.*, an official form of Gregory's Powder.

The Gout Powder.

℞ *Lithiæ Citratis*,
Magnesia Levis a.a. gr. x. M. et ft. pulvis.

To be taken twice a day, until the Magnesia acts gently upon the bowels.

The Stomachic Mixture.

℞ *Bismuthi Albi* gr. xl (or ʒii). Basis.
Aeidi Nitro-Hydrochlorici Diluti fl. drs. iii, or
 fl. oz. ss. Adjuvant.
Aeidi Hydrocyanici Diluti fl. dr. ss. Adjuvant.
Tincturæ Aurantii fl. oz. ss. Gr. Saporis.
Infusi Calumbæ. Vehicle.
Aquæ a.a. fl. oz. iiiss. M. et ft. mistura.

Note.—The Infusion of Calumba is now twice the strength of Ph. L. and E. The prescriber's attention is called to the fact by the water in the above prescription. The larger dose of the diluted acid is more than many palates can bear.

The Antispasmodic Drops.

℞ *Spiritus Menthæ Piperitæ*, or
Spt. Myristicæ, or
Spt. Cajuputi fl. drs. ii. (mi of oil in mx of
 the Spt.)
Spt. Ammonia Aromatici fl. drs. iii.
Tinct. Lavandulæ Comp. fl. drs. iii. M.

One or two teaspoonfuls to be taken in water (*i. e.* gtt. iss or gtt. iii of the Oil of Mint, Nutmeg, or Cajuput, as the Case may be).

Note.—The above spirits bear no resemblance in

strength to the spirits of the same name in the old Pharmacopœias, being from 47 to 140 times as strong as formerly.

The Purgative Draught.

- ℞ Decocti Aloes Comp. fl. oz. ss (*i. e.* nearly gr. iii of Aloes). Basis.
 Syrup Sennæ fl. drs. ii (*i. e.* nearly ʒi of Senna).
 Adjuvant.
 Aquæ Menthæ Piperitæ fl. drs. ii. M. et ft.
 haustus. Corrigent and Vehicle.
-

The Liver Pill.

- ℞ *Podophylli Resinæ* gr. ss.
Fellis Bovini Purificati gr. ii.
 Pulv. Rhei gr. ii. M. et ft. pil.

To be taken occasionally to promote the action of the liver.

Note.—*Podophyllum Resin* is uncertain in its action, the sixth of a grain sometimes acting freely, whilst in other cases half a grain at least is requisite. The constitution of each patient with respect to it must therefore be known before the dose for the pill can be settled for him. It is safest to begin with the small dose, as half a grain sometimes purges violently.

The Tonic Digestive Pill.

- ℞ Extracti Nucis Vomic. gr. $\frac{1}{4}$ (or gr. ss, if only once a day).
 Ferri Redacti gr. iii.
Bismuthi et Ammon. Citrat. gr. 1.

Extracti Rhei q. s. ut ft. pil. Mitte viii.

To be taken twice a day, and continued for a week or ten days.

The Astringent Pill.

℞ Pil. Plumbi eum Opio gr. iv (*i. e.* gr. ss of Opium). Mitte viii.

One pill to be taken three or four times a day.

Cannot be continued an indefinite length of time.

The Astringent Powder.

℞ Pulveris Cretæ Aromatici eum Opio gr. xl (or ℥ii, *i. e.* gr. i Opii).

To be taken in divided doses, or all at once, in a recent case of Diarrhœa.

Note.—This powder is strongly flavoured with Saffron, which was not present at all in the old Pulv. Cretæ Comp. eum Opio.

The Astringent Extract.

℞ Extracti Belæ Liquidæ fl. oz. viii.

One tablespoonful (*i. e.* oz. ss of Bael) to be taken two or three times a day. May be continued, if necessary, for a considerable time.

The Astringent Mixture.

(For Chronic Mucous Diarrhœa, with General Debility.)

℞ Liquor. Ferri Pernitr. fl. drs. ii; ℥ dose mxxv.
Infusi Cuspariæ ad fl. oz. viii; „ fl. oz. i.

Extracti Opii Liquidi min. xl; \mathfrak{p} dose \mathfrak{m} v.

Two tablespoonfuls to be taken three times a day.

Note.—May be continued for a week or ten days.

The Drop for Dilating the Pupil.

\mathfrak{R} *Liquor. Atropiæ* fl. drs. ii (*i. e.* gr. i *Atropiæ*).

The drop to be applied to the inside of the lower eyelid every day, or every other day, by means of a quill cut obliquely.

The Ear Drop.

\mathfrak{R} *Tinct. Iodinii Comp. Ph. L.* fl. dr. i. ss.

Iodi gr. ss.

Fousel Oil fl. dr. i. M. et ft. gutt.

To be applied to the meatus of the ear or the tympanum by a camel's-hair pencil every other day. If it gives pain beyond a few minutes, it must be reduced in strength for one or two applications. See p. 94.

The Hair Wash for Loss of Hair.

\mathfrak{R} *Ammon. Hydrochloratis* \mathfrak{z} ii.

Spt. Juniperi \mathfrak{m} xx.

Tinct. Cantharidis fl. oz. i.

Spirit. Rect. fl. oz. ii.

Aquæ Camphoræ ad fl. oz. xvi. M.

To be well rubbed into the hair, and afterwards well brushed.

The Obstetric Draught.

℞ *Extracti Ergotæ Liquidī* fl. dr. i (i. e. ʒi of Secale).

Aquæ Menthæ Piperitæ fl. drs. vii. M. et ft. haustus.

To be taken at once, if intended to assist in labour. If intended for continued employment in spinal affections, the dose of the liquid extract should be min. x or min. xv.

The Menstrual Anodyne.

℞ *Tinct. Cannabis Indicæ* fl. drs. ii.

Seven to fifteen drops to be taken on a lump of sugar, three or four times a day, for one or two days, when there is much dysmenorrhœa.

Note.—The only cases in which I have found *Cannabis Indica* produce satisfactory results are those of painful menstruation, with either too scanty or too copious a secretion. In the above dose it has frequently afforded great relief. If it does not relieve soon, I have found no benefit from continuing its employment.

The Worm Powders.

(For Round Worms only.)

℞ *Santonini* gr. vi.

Sacchari gr. x. M. et divide in pulv. iii.

One powder to be taken every other night, till the three are finished, unless one or two powders act sufficiently in the meantime. A purgative afterwards is not generally necessary. See p. 123.

The Worm Powders.

(For Tape Worms only.)

Kamelæ gr. clxxx (3iii). Divide in pulv. iii.

One powder to be taken every three hours, or until the worm is expelled.

Note.—The dose here ordered is a drachm of *Kamelæ* every three hours. The inconvenience of using Roman numerals for such large numbers will no doubt prevent their employment; and prescribers will still use the familiar symbol, 3iii, instead of gr. clxxx, or else the Arabic figures, gr. 180. See p. 98.

The Draught for Tape Worms.

℞ *Extracti Filicis Liquid*i min. xxx, vel fl. dr. i.
Mucilaginis Acaciæ fl. oz. iss. M.

To be taken after a six hours' fast, and followed up by several hours' abstinence from anything stronger than a cup of tea. To be succeeded, if necessary, in six or eight hours, by *Olei Ricini* fl. oz. ss. See p. 89.

The Injection for Thread Worms.

℞ *Quassia* oz. ss.
Aquæ fl. oz. viii.

Boil down to one half, and use the strained decoction as an injection at night: to be followed by a purgative in the morning.

For Dry Cutaneous Eruptions.

℞ *Ferri Arseniatis* gr. $\frac{1}{24}$.

Extracti Glycyrrhizæ gr. ii. M. ut ft. pil.

One pill to be taken two or three times a day for three weeks at a time.

Or,

℞ *Liquor. Sodæ Arseniatis* fl. oz. ss.

Four or five drops to be taken two or three times a day in water, immediately after a meal, for three weeks at a time.

Or,

℞ *Acidi Sulphurosi* fl. dr. i.

Aquæ fl. drs. vii. M. et ft. lotio.

Or a pint may be added to the water of a bath. Especially useful in moist eruptions.

For Vomiting.

℞ *Liquor. Calcis Saccharati* fl. oz. ii.

A small teaspoonful to be taken in a teacupful of milk, as an article of diet, two or three times a day.

For Sloughing Sores.

℞ *Bone Black* or *Ivory Black* 1 part.

Linseed Meal, 3 parts.

Boiling water to make them into a poultice.

This is far more efficacious than wood charecoal in preventing the smell from sloughing sores.

OMISSIONS.

Substances and their Preparations Omitted from
the New British Pharmacopœia.

Above sixty substances have been omitted from the *Materia Medica*, in the new Pharmacopœia, which were contained in the last edition of their works, issued by the Colleges of London, Edinburgh, or Dublin; and about one hundred and fifty preparations have also been struck out, which had a place in the same works. The following list contains the omissions, a few of which will be regarded with surprise by those who are accustomed to use them. For *Oxymel Scillæ*, *Acetum Colchici*, *Atropiæ Sulphas*, *Pil. Ferri Comp.*, *Plumbi Iodidum* and its preparations, *Tormentilla* and Compound Sulphur Ointment are amongst those which have been erased.

Absinthium, L.
Acetum Britannicum, L.
 — *Cantharidis*, L. D.
 E.
 — *Colchici*, L. D. E.
 — *Destillatum*, L. E.
 — *Opii*, E. D.
 — *Scillæ*, L. D. E.

Acidum Aceticum Camphoratum, D., E.
 — *Pyroligneum*, E.
Ærugo, L.
Allium, E.
Aloe Hepatica, L.
Althæa, L.
Ammoniæ Bicarbonas, D.

Name changed to Ammon. Carb.	Confectio Aromatica, L. D. E.
Ammoniae Sesquiearbo- nas, name changed to Ammon. Carb.	— Aurantii, L. E.
Angelica, E.	— Cassiae, L.
Aqua Anisi, D.	— Catechu Comp. D. E.
— Cassiae, E.	— Opii, L. E.
— Menthae Pulegii, D.	— Rutae.
— Sodae Effervescens, E.	Conserva Amygdalarum, E. See Conf. Amyg.
Arseniei Chloridi Liquor, L.	— Aurantii, E.
Arsenici et Hydrargyri Hydriodatis Liquor, D.	Cornu, and Cornu Us- tum, L.
Atropiae Sulphas, L.	Cupri Ammonio-sulphas, L. D. E.
Bismuthi Nitras or Tris- nitras. Name changed to Bismuthum Album.	Curcuma, L.
Calamina Ppt. and all its preparations, L.	Cydonium, L.
Calamus aromaticus, E.	Cyminum, L.
Caleii Chloridum, L. D. E.	Decoetum Amyli, L.
Canella, L. E. D.	— Chimaphilae, L.
Carota, L.	— Cinchonae pallidae, L. D. E.
Cassiae Cortex and Oil, E.	— Cinchonae rubrae, L. E.
Centaureum, E.	— Cydonii, L.
Cerates are omitted.	— Duleamaræ, L. D. E. Changed to Infusion.
Chimaphila, L.	— Gallæ, L.
Cinnabar, E.	— Granati (rind of fruit), L.
Confectio Amygdalæ, L. E. Name changed to Pulv. Amygdalæ Co.	— Guaiaei, E.
	— Hordei Comp., L.
	— Lini Comp., D.
	— Mezerei, E.
	— Myrrhae, D.

- Decoctum Pyrolæ, D.
 — Senegæ, L. D.
 Changed to Infusion.
 — Tormentillæ, L.
 — Ulmi, L.
 — Uvæ-Ursi, L. D.
 Changed to Infusion.
 Electuaries, E. Changed
 to Confections.
 Electuarium Aromaticum, E.
 — Catechu, E.
 — Opii, E.
 Emplastrum Ammoniaci,
 L. D. E.
 — Assafoetidæ, E.
 — Cantharidis Comp.,
 E.
 — Cumini, L.
 — Gummosum, E.
 Name changed to
 Empl. Galbani.
 — Plumbi. Changed
 to Empl. Litharg.
 — Potassii Iodidi, L.
 — Simplex, E.
 Enema Anodynum, D.
 Changed to Enem.
 Opii.
 — Fœtidum, D. E.
 Changed to Enema
 Assafoetidæ.
 Essentiæ, D. All omitted
 by name, though several
 of them are retained
 by the name of
 Spirits.
 Euphorbium, E.
 Extractum Cinchonæ
 (yellow bark), L. E.
 — Cinchonæ Pallidæ,
 L. E.
 — Cinchonæ Rubræ,
 L. E.
 — Colocynthidis
 (simple), L. E.
 — Digitalis, E.
 — Lactucæ, L.
 — Papaveris, L. E.
 — Pareiræ, L. E.
 — Styracis, E.
 — Uvæ-Ursi, L.
 Ferri Ammonio-Chloridum,
 L.
 — Carbonas, D.
 — Sesquioxidum, L.
 — Sulphuretum, D.
 E.
 Ferri Valerianas, D.
 Granatum. The Rind of
 the Fruit, L.
 Helleborus, L.
 Hydrargyri Bisulphure-
 tum, L.
 — et Arsenici Hydriodatis
 Liquor, D.
 Hydrargyrum cum Magnesia,
 D.
 Infusum Armoraciæ
 Comp., L.

Infusum Aurantii Comp.,
L. D. E.

— Cinchonæ Spissatum, L.

— Juniperi, D.

— Menthæ viridis, D.

— Pareiræ, D. E.

— Pyrolæ, D.

— Simaroubæ, D. E.

Inula, L.

Juniperi Cacumina, E. D.

— Fructus, L. D. E.

Laetuca sativa, L. D. ;

— virosa, D.

Lactucarium, D. E.

Lauri Baecæ, L.

Lavandula, E.

Linimentum Æruginis, L.

— Ammonię Sesquicarbonatis, L.

— Ammonię Comp., E.

— Anodynum, D.

Changed to Lin. Opii.

— Simplex, E.

Linum Catharticum, E.

Liquor Aluminis Comp., L.

— Ammonię Citratis,
L.

— Ammonię Sesquicarbonatis, L.

— Antimonii Tartarizati, D.

— Arsenici Chloridi, L.

— Arsenici et Hydrargyri Hydriodatis, D.

Liquor Calcii Chloridi, L.
D. E.

— Hydrargyri Bichloridi, L.

— Morph. Acet., L. D.

— Potassii Iodidi
Comp., L. D.

— Sodæ Carbonatis, D.

— Zinci Chloridi, D.

Lupulina, D.

Malva, E.

Mel Rosæ, L. E.

Melissa, E.

Menyanthes, E.

Mistura Acaciæ. Name
changed to Mucilago
Acaciæ.

— Camphoræ. Name
changed to Aq. Camph.

— Camphoræ c. Magnesia, E.

— Ferri Aromatica, D.

— Gentianæ Comp., L.

— Hordei, E.

— Spiritus Vini Gallici, L.

Morphiæ Acetas, L. D. E.

Mucilago Hordei, D.

Mucuna, L.

Oleum Æthereum, L.

— Cassiæ, E.

— Fœniculi, L. D.

— Origani, E.

— Pulegii, L.

— Rosæ, E. D.

Olcum Sassafras, E.
 — Succini, D.
 Origanum, E.
 Oxytel Scillæ, L.
 Petroleum, L.
 Phosphorus, L.
 Pilula Aloes, E.
 — Aloes et Ferri, E.
 — Aloes cum Sapone,
 L.
 — Calomelanos et Opii,
 E.
 — Conii Comp., L.
 — Cupri Ammoniati,
 E.
 — Digitalis et Scillæ,
 E.
 — Ferri Comp., L.
 — Ferri Sulphatis, E.
 — Galbani Comp., L.
 — Ipecacuanhæ cum
 Scilla, L.
 — Ipecacuanhæ et
 Opii, E.
 — Rhei, E.
 — Rhei et Ferri, E.
 — Saponis Comp., L.
 Name omitted ; chang-
 ed to Pil. Opii.
 — Styraeis, E.
 — Styraeis Comp., L.
 — Thebaicæ, E. Name
 changed to Pil. Opii.
 Piper longum, L. E.
 Pix Arida, E.

Pix Nigra, L.
 Plumbi Iodidum, L.D.E.
 — Nitras, D. E.
 — Oxidum Rubrum,
 E.
 Potassa cum Calce, L.D.E.
 Potassæ Aqua Efferves-
 cens, E.
 — Bisulphas, E.
 Pulegium, L.
 Pulveres Effervescentes.
 All omitted.
 Pulvis Aloes Comp., L.
 — Aluminis Comp., E.
 — Cinnamomi Comp.,
 L.
 — Cretæ Comp., L. D.
 E.
 — Cretæ Comp. c. Opio,
 L.
 — Cretæ Opiatus, D.E.
 — Ipecacuanhæ Comp.
 Name omitted ; chang-
 ed to P. Ipec. c. Opio.
 — Salinus Comp., E.
 Pyrethrum, L.
 Pyrola, D. E.
 Quinæ Murias, D.
 — Valerianas, D.
 Rhamni Baccæ, E.
 — Succus, L.
 Rosæ Oleum, E. D.
 Sagapenum, L.
 Salicis Cortex, E.
 Simarouba, E. D.

Sodæ Effervescens Aqua,
E.

— Sulphas, L. D. E.

Spigelia Marylandica, E.

Spiritus Æthercus Oleo-
sus, D.

— Ætheris Comp., L.

— Ammoniae, E.

— Ammoniae Fœtidus,
L. D. E.

— Anisi, L.

— Cassiae, E.

— Cinnamomi, L. E.

— Lavandulæ Comp.,
E. Name omitted;
changed to Tinct.
Lavand. Comp.

Spiritus Menthae viridis,
L.

— Pimentæ, L. E.

— Pulegii, L.

Spongia, E.

Stanni Pulvis, D. E.

Staphysagria, L. E.

Strychniae Murias, D.

Succini Oleum, D.

Sulphuris Iodidum, L. D.

Syrupus Aceti, E.

— Acidi Citrici, D.

— Althææ, L. E.

— Cocci, L.

— Croci, L. D. E.

— Ipecacuanhæ, E.

— Morphiæ Acetatis,
D.

Syrupus Morphiæ Muri-
atis, D.

— Rhamni, L. E.

— Sarzæ, L. D. E.

— Violæ, L. E.

Terbinthina Americana
vel vulgaris, L.

— Chia, L. E.

— Veneta, E.

Tinctura Aloes Comp., L.

— Aloes et Myrrhæ, E.

— Ammoniae Comp.,
L.

— Camphoræ, D. E.
Name omitted; chan-
ged to Spiritus Camph.

Tinct. Camphoræ Comp.,
L. Name omitted;
changed to Tinct.
Camph. cum Opio.

— Cardamomi, E.

— Cassiæ, E.

— Castorei Ammon., E.

— Catechu Comp.
Name changed to T.
Catechu.

— Cinnamomi Comp.,
L. E. D.

— Colchici Comp., L.
(Aromatic.)

— Conii. (Made from
the Leaves.)

— Cubebæ, L. D.

— Cuspariæ, E.

— Ergotæ Ætherca, L.

Tinct. Ferri Acetatis, D.
 — Ferri Ammonio-
 Chloridi, L.
 — Ferri Sesquichlo-
 ridi. Name changed
 to T. Ferri Perchloridi.
 — Guaiaci, L. E.
 — Hellebori, L.
 — Iodinii, E.
 — Lactucarii, D.
 — Matico, D.
 — Opii Ammoniata, E.
 — Opii Camphorata,
 D. E. Name changed
 to Tinct. Camph. c.
 Opio.
 — Quassiae, E.
 — Quassiae Comp., E.
 — Rhei et Gentianae, D.
 — Rhei et Aloes, E.
 Tormentilla, L.
 Trochisci Acaciae, E.
 — Acidi Tartarici, E.
 — Cretae, E.
 — Glycyrrhizae, E.
 — Lactucarii, E.
 — Magnesiae, E.
 — Sodae Bicarbonatis,
 E.
 Unguentum Aëruginis, E.
 — Ceræ Albæ, D.
 — Citrinum, E. Name

changed to Ung. Hy-
 drarg. Nitratis.
 Unguentum Conii, L.
 — Cupri Subacetatis,
 D.
 — Hydrargyri Iodidi,
 L.
 — Hydrargyri Nitratis
 Mitius, L.
 — Hydrargyri Nitrico-
 Oxidi, L. Name
 changed to Ung. Hy-
 drarg. Oxidi Rubri
 — Infusi Cantharidis,
 E.
 — Opii, L.
 — Picis, L.
 — Picis Liquidæ, L. D.
 E.
 — Plumbi Acetatis, D.
 E.
 — Plumbi Comp., L.
 — Plumbi Iodidi, L. D.
 — Sambuci, L.
 — Sulphuris Comp.,
 L.
 — Sulphuris Iodidi, L.
 Vinum Gentianae, E.
 — Rhei, D. E.
 — Tabaci, E.
 — Veratri, L.
 Viola, L.

Table of Doses and Incompatibles.

This Table contains the name of every substance and preparation contained in the new Pharmacopœia, and of several others which appear deserving of notice, although not present in that work. *The medicines which are not officinal in the Ph. Br. are indicated by a star.* In describing the Incompatibles, no allusion is made to such things as are never likely to be combined; but those only are mentioned which are likely to raise a question in the prescriber's mind. For example, it appears mere waste of time to say that acids are incompatible with Potassa Fusa, a substance which is never used except for setting issues; but Nitrate of Silver is employed internally, besides being used as a caustic; and a prescriber may easily doubt whether he should choose the Muriate or the Acetate of Morphia, in selecting an opiate for combination with it. In many Lists of Incompatibles, substances are inserted which will not however be noticed in the following table: *e.g.* Tannin and Gallic Acid, and tinctures and effusions containing them, are usually stated to be incompatible with preparations of Iron; but they will not generally be called so here; for although they are in one sense incompatible, as form-

ing a Tannate or Gallate of Iron, which, if the proportion is large, may be insoluble in simple water, yet the compound is perfectly soluble in the excess of acid which is generally present in such mixtures; and the incompatibility really amounts simply to a change of colour, the mixture being dark-coloured instead of light. Such substances therefore will not be put down as Incompatibles.

Acacia. Dose, *ad libitum*.

— Mucilago (Gum oz. iv, Water fl. oz. vi). Dose, *ad libitum*.

Acetate of Lead. Dose, gr. ii to gr. vi. *Incompatibles*: Dilute Sulphuric Acid and soluble Sulphates, such as Alum or Sulphate of Iron.

— of Potash. Dose, gr. xv to ʒss. Should be given much diluted.

— of Soda. Not for internal use.

— of Zinc. Dose, ʒi to ʒss as an emetic; gr. i to gr. iv in fl. oz. i as a collyrium, or injection in Gonorrhœa.

Acetum (French). Dose, *ad libitum*. It is stated that so-called French vinegar is nearly all made in this country, and not from wine at all.

Acids, Mineral, is the name generally applied to Nitric, Hydrochloric, Phosphoric, and Sulphuric Acids.

Acidum Aceticum (28 per cent.). Not for internal use.

Acidum Aceticum Dilut. (3·5 per cent.). Dose, *ad lib*.

— Aceticum Glaciale. 85 per cent.

— Arseniosum. Seldom given in the solid form. Dose, gr. $\frac{1}{24}$.

— Benzoicum. Seldom used alone. Dose, gr. ii to gr. v.

- *Acidum Carbolicum. Dose, the same as Creasote, which see, and also p. 61.
- *—— Chromicum. Applied to Syphilitic Warts by means of a camel's-hair pencil. See p. 82.
- Citricum. Oz. iss in Oi of water nearly equals lemon juice. Dose of this solution, fl. oz. ss to fl. oz. i sufficiently diluted, or *ad libitum*. Half a fluid ounce of this solution, or one tablespoonful of lemon juice is the proper quantity for ʒi of Sodæ Bicarb., for gr. xv of Ammon. Carb., or for gr. xxv of Potass. Bicarb.
- Gallicum. Dose, gr. viii to gr. xv, but as much as ʒi to ʒii have been given twice or three times a day.
- Hydrochloricum. Not for internal use. Is not strong enough to produce a slough, and may be applied undiluted, by a camel's-hair pencil, to the cheeks and gums in profuse mercurial salivation, not only without harm, but with great relief to the patient's suffering.
- Hydrochloricum Dilutum (3 parts in 11). Dose, mxx to mxxx.
- Hydrocyanicum Dilutum (2 per cent.). Dose, miii to mvi. *Incompatibles*: Preparations of Iron; but it is sometimes added to Mist. Ferri Co., the colour of which it changes.
- Nitricum. Not for internal use.
- Nitricum Dilutum (2 parts in 15). Dose, mxx to mxxx.
- Nitro-Hydrochloricum Dilutum. Dose, mxx to mxxx. See p. 38.
- Phosphoricum Dilutum. mxii to mxx. A larger dose is frequently disagreeable.
- Sulphuricum. Not for internal use.
- Sulphuricum Dilutum (nearly 1 part in 13).

Dose, generally $\mathfrak{m}\nu$ to $\mathfrak{m}x$; in Cholera, $\mathfrak{m}xx$ to $\mathfrak{m}xxx$ every two or three hours. *Incompatibles*: Acetate of Lead should not be given along with Dilute Sulphuric Acid in cases of internal Hæmorrhage, but Alum may be advantageously given.

Acidum Sulphur. Aromaticum. Dose, $\mathfrak{m}xx$ to $\mathfrak{m}xxx$.

— Sulphurosum. Externally, fl. oz. i or fl. oz. ii may be used in an oz. viii lotion, or fl. oz. xvi in a bathful of tepid water. Dose, internally $\mathfrak{m}xv$.

— Tannicum or Tannin. Dose, gr. iii to gr. x in pill. $\mathfrak{m}i$ of Glycerine forms a pill with gr. iv of Tannic Acid. For injection, gr. iv to gr. x in fl. oz. i.

— Tartaricum. Oz. iss in fl. oz. xx nearly equals lemon juice in acidity; $\mathfrak{z}ii$ in fl. oz. viii is pleasantly acid. Dose, *ad libitum*. Gr. xviii neutralize $\mathfrak{z}i$ of Sodæ Bicarb.

Aconiti Radix. Not intended for medicinal administration.

— (Radiceis) Linimentum. $\mathfrak{m}xxx$ at a time, for external use. See p. 31.

— (Radiceis) Tinctura. Dose, $\mathfrak{m}\nu$ to $\mathfrak{m}x$ every six or eight hours. To be increased very cautiously or not at all. See p. 27.

Aconitia. Not to be used internally.

— Unguentum. Gr. i in $\mathfrak{z}i$; apply gr. xx to gr. xxx externally.

Aconitum. The leaves and flowering-tops. Only used for making the Extract.

— Extractum. Dose, gr. i to gr. ii. To be very carefully watched.

* Actæa Racemosa. Dose of the powdered root, from gr. xx every two hours to a teaspoonful three times a day. See p. 41.

* — Racemosa Tinctura. (Actæa root oz. iv, Proof Spirit Oi.) Dose, $\mathfrak{f} \mathfrak{z}i$ to fl. oz. ss, three or four times

a day, until it produces some nausea or dizziness.
See p. 41.

Adeps Præparatus.

Æther. Not used internally.

Ætheris Nitrosi Spiritus. Dose, \mathfrak{mxxx} to $\mathfrak{f\zeta i}$.

— *Spiritus (Spt. Æth. Sulph.).* Dose, \mathfrak{mxxx} to $\mathfrak{f\zeta i}$.

Alcohol. Not used internally. For a lotion, fl. oz. i or fl. oz. ii in fl. oz. viii.

**Alkekengine.* Dose, gr. ii to gr. viii. See p. 111.

Aloe Barbadosis. Dose, gr. i to gr. iii; increasing the dose does not materially increase its action.

— *Barbadosis Enema.* (Aloes $\mathfrak{ðii}$, Potass. Carb. gr. xv, Starch fl. oz. x.) Dose, the whole.

— *Barbadosis Extractum.* Dose, gr. i to gr. iii; the dose is not materially different from that of simple Aloes.

— *Barbadosis Pilula.* (Aloes Barb. 2, Hard Soap 1, Oil of Caraway $\frac{1}{8}$, Conf. Rosæ 1 part.) Dose, gr. v to gr. x.

— *Socotrina.* Dose, gr. i to gr. iii. Increasing the dose does not materially increase its action.

— *Socotrinæ Enema.* See Aloes Barb. Enema, above.

— *Socotrinæ Extractum.* Dose, gr. i to gr. iii. See Al. Barb. Ext. above.

— *Socotrinæ et Assaf. Pil.* Dose, gr. v.

— *Socotrinæ et Myrrhæ Pil.* Dose, gr. v.

— *Socotrinæ Pilula.* Dose, gr. v. Is flavoured with Oil of Nutmeg (gtt. $\frac{1}{8}$), instead of Oil of Caraway like Pil. Al. Barb.

— *Socotrinæ Tinctura.* (Aloes oz. ss in Oi Pr. Spt.) Dose, $\mathfrak{f\zeta i}$ to fl. oz. ss, i.e. gr. iss to gr. vi.

— *Socotrinæ Vinum.* (Aloes oz. $\frac{3}{4}$ in Oi of Sherry.) One-half stronger than the Tinctura. Dose, $\mathfrak{f\zeta i}$ to

fl. oz. ss, i e. about gr. ii to gr. viii. See Aloe Socotrina, above.

Alumen. Dose for *internal* use: in the last stage of Hooping Cough, gr. ii to gr. v, with acid tonics; in internal Hæmorrhages, gr. v to gr. x, with mineral acids; in Lead Colic, ℥i to ℥ii three or four times a day for two or three days. *Incompatibles*: Alkalies. For *external* use: as an eye lotion, gr. i to gr. ii in fl. oz. i; as an injection in Leucorrhœa, oz. ss to O i; as a styptic, a saturated solution to be applied on lint. *Incompatibles*: Decoctum Quercus weakens rather than increases its strength; opiates lessen the transparency of a solution, but are often advantageously added to an eye-wash or astringent solution.

— **Exsiccatum (Ustum).** Not used internally. A small quantity is to be blown through a quill, or sprinkled on a flabby granulating surface. Should be used alone, or diluted with an equal quantity of very finely powdered lump sugar.

Ammoniacum. Dose, gr. i to gr. xv.

— **Mistura.** Dose, fl. oz. i, which contains gr. xv of Ammoniacum.

Ammoniæ Acetatis Liquor. Dose, ℥xxx to ℥xl, or in writing a prescription, fl. oz. ss to f 3v enter into an fl. oz. viii mixture. See p. 26. *Incompatibles*: Alkalies and their carbonates render it much more pungent and stimulating, and sometimes induce a tendency to vomit.

Ammoniæ Benzoas. Dose, gr. xv to ℥ii. *Incompatibles*: Strong Acids and Alkalies. See p. 42.

— **Carbonas.** Dose, as a *stimulant*, gr. ii to gr. vi. A larger dose sometimes causes vomiting. As an *emetic*, gr. xv to 3ss. To be repeated if necessary. For a stimulating diaphoretic effervescent,

gr. viii may be taken with a dessert-spoonful, or gr. xv with a tablespoonful of lemon juice. The effervescence is, however, so slight, that it is well to add double the quantity of Carbonate of Soda to the Carbonate of Ammonia, and then use twice the quantity of lemon juice above mentioned.

Ammonia Hydrochloras. Dose, gr. v to gr. xv, if it is to be continued for some time: \mathfrak{z} i to \mathfrak{z} ss three times a day in Rheumatic Face-ache. Should be discontinued in this case if 3 or 4 doses do not give decided relief. It is very nauseous, and I do not know any method of concealing the flavour. *Incompatibles*: Alkalies.

— *Liquor.* Not used internally. One-third the strength of *Liq. Am. Fort.* (11 per cent. of *Ammonia*).

— *Liquor Fortior.* Three times as strong as the simple *Liquor.* (32.5 per cent. of *Ammonia*.)

— *Phosphas.* Dose, gr. xv to \mathfrak{z} ii. *Incompatibles*: Alkalies and strong Acids.

— *Sesquicarbonas.* Name changed to *Am. Carb.* See above.

**Ammonii Bromidum.* Not officinal. Dose, gr. ii to gr. x. See p. 43. May be given with a bitter tonic.

Amygdala. Dose, *ad lib.*

— *Mistura.* Dose, fl. oz. i contains \mathfrak{z} ii of almonds.

— *Pulvis Comp.* Almonds form two-thirds of the powder. \mathfrak{z} i makes fl. oz. i of *Mistura.* Forms the *Mistura Amygdal.*

— *Oleum.* Dose, as a laxative for an infant, \mathfrak{z} i mixed with \mathfrak{z} i of *Syrup of Violets* (which, however, is not now officinal).

Amylum. Dose, for a starch injection, \mathfrak{z} ii in fl. oz. x.

Anethi Aqua. Dose, f \mathfrak{z} i to fl. oz. i.

— *Oleum.* Dose, gtt. i to gtt. ii with *Magnesia* and *Syrup.*

Anethum. Not given internally in the solid form.

*Aniline. Dose, gtt. i, t. d., but it is seldom used.

See p. 44.

*—— Sulphate. Dose, gr. i, t. d., for a month or more. See p. 44.

Anthemis. As a stomachic \mathfrak{z} ii to \mathfrak{z} iss, infused in a few ounces of water. As an emetic, oz. ss to oz. i infused in a pint of water.

—— Extractum. Dose, gr. ii to gr. iv.

—— Infusum. (Oz. ss in fl. oz. x.) Dose, as a stomachic, fl. oz. ii to fl. oz. iv. As an emetic, fl. oz. viii to fl. oz. xvi.

—— Oleum. Dose, gtt. i to gtt. ii, in pills, to correct the griping of purgatives.

Antimoniale Vinum. (Gr. ii of Tartar Emetic in fl. oz. i.) Dose, \mathfrak{m} xxx to \mathfrak{f} zi. The latter dose is liable to cause vomiting if repeated.

Antimonii Oxidum. Dose, gr. ii to gr. iv.

—— Potass. Tart. See Antim. Tartaratum, below.

—— Terchloridi Liquor. Not used internally.

Antimonium Sulphuratum. Dose, gr. i to gr. iii.

—— Tartaratum. Dose, as a nauseant diaphoretic, gr. $\frac{1}{8}$ to gr. $\frac{1}{4}$. As an emetic, gr. $\frac{1}{4}$ to gr. iv. *Incompatibles*: Strong Alkalies and Acids, and astringent decoctions; which are not, however, likely to be given along with it.

Aqua Anethi. Dose, \mathfrak{f} zi, for an infant, with Magnesias and Syrup.

—— Camphoræ. Dose, fl. oz. ss to fl. oz. i (fl. oz. i contains about gr. i).

—— Carui. Dose, \mathfrak{f} zi for an infant. See Aq. Anethi.

—— Cinnamomi. Dose, fl. oz. i.

—— Fœniculi. Dose, \mathfrak{f} zi, for an infant. See Aq. Anethi. For an adult, fl. oz. i.

- Aqua Laurocerasi. Dose, $f\bar{3}ss$ to $f\bar{3}i$, sometimes fl. oz. ss. Should not be given to children. An uncertain variable preparation. Is sometimes used as a substitute for Prussic Acid.
- Menthæ Piperitæ. Dose, $f\bar{3}i$, for infants. See Aq. Anethi. For adults, fl. oz. ss to fl. oz. i.
- Menthæ Viridis. Dose, fl. oz. ss to fl. oz. i. Not given to children.
- Pimentæ. Dose, fl. oz. ss to fl. oz. i. Ditto.
- Rosæ. Dose, fl. oz. ss to fl. oz. i. Chiefly, however, used externally as a collyrium, or as an agreeable vehicle for astringent lotions.
- Sambuei. Dose, fl. oz. ss to fl. oz. i. Not given to Infants.
- Argenti Nitras. Dose, for *internal* use, gr. $\frac{1}{4}$ to gr. ss. For *external* use, as an eyedrop, gr. i to $\bar{3}i$ in fl. oz. i, according to the object in view. For application to the Rima Glottidis and Epiglottis, gr. xv to $\bar{3}i$ in fl. oz. i. When used externally it should generally be dissolved in simple water, but it may be combined with Acetate of Morphia or Extract of Belladonna, in some forms of ophthalmic disease. Muriate of Morphia may be given with it in the form of pills.
- Argenti Oxidum. Dose, gr. $\frac{1}{4}$ to gr. ss. See p. 45.
- Incompatible*: Creasote in the form of pill.
- Armoracia. Dose, *ad lib*.
- Spiritus Comp. ($\bar{3}i$ of Horseradish in fl. oz. i.) Dose, $mxxx$ to $f\bar{3}ii$.
- Arnica root. Only used in the form of tincture.
- Tinctura. Dose, internally, $mxxx$. Externally, fl. oz. i or fl. oz. ii in Oi. See p. 46.
- Arsenious Acid. Seldom given in the solid form. Dose, gr. $\frac{1}{24}$ carefully increased.
- Arsenicalis Liquor. (Gr. iv. in fl. oz. i.) Dose, gtt. iii to gtt. v. Carefully watched or increased. May

be given along with alkalies, or with Tr. Ferri Mur. or Bitters.

Assafœtida. Dose, gr. i to gr. iii.

— Enema. fl. oz. ss of the tincture in fl. oz. iv of gruel. It is often better to dilute it further with half a pint or a pint of gruel.

— Pil. Comp. Dose, gr. v.

— Tinctura. Dose, mxxx alone or combined with Tinct. Valerianæ and Hyoscyamus in painful flatulent hysteria. As an *injection*, f ʒii to fl. oz. ss in gruel. See Assaf. Enema, above.

Atropia. Not used internally.

— Lignor. (Gr. iv. in fl. oz. i.) Not used internally. Gtt. i suffices to dilate the pupil in about twenty minutes when applied to the eye.

— Unguentum. (Gr. i in ʒi.) Gr. xxx to be applied externally. See p. 46.

Aurantii Aqua. Dose, fl. oz. ss to fl. oz. i.

— Cortex. Oz. ss makes half a pint of infusion.

— Floris Syrupus. Dose, f ʒi to oz. ss or oz. i. See Pulv. Rhei Co.

— Infusum. (Oz. ss in fl. oz. x.) Dose, fl. oz. i.

— Syrupus. (f ʒi of Tr. Aurant. in fl. oz. i.) Dose, f ʒi or more.

— Tinctura. Dose, f ʒi to fl. oz. ss.

*Balsamum Canadense. Not used internally.

— Peruvianum. Seldom used internally. Dose, gr. x to ʒss, suspended by yolk of eggs or treacle.

— Tolutanum. Dose, gr. x to ʒss, given as above.

Bebeerine Bark. Only used for obtaining Beberix Sulph.

Beberix Sulphas. Dose, gr. i to gr. iii, as a tonic; gr. x or more in Ague. See p. 47.

Bela. Dose, of the fluid extract, fl. oz. ss to fl. oz. i; to be continued for some time. See p. 48.

Belladonna. *The Leaves*, only used to yield the Extract and Tincture.

—— Emplastrum. One-half consists of Extr. of Belladonna.

—— Extractum. Dose, for internal use, gr. $\frac{1}{4}$ to gr. ss. I have lately noticed a much larger dose recommended in Hooping Cough; but I have seen very unpleasant symptoms produced more than once, by a dose even less than half a grain. For external application round the nipples to check the secretion of milk, the quantity should seldom exceed ʒi . When a large quantity is used, say, ʒii at once, it does not act so well (as far as I have observed) as when the smaller quantity is employed.

Belladonnæ Tinctura. Dose, mxx to mxxx .

—— Unguentum. One-sixth part consists of Extr. of Belladonna.

—— *Radix*. Only used to furnish the Liniment.

—— (Radicis) Linimentum, mxxx to be applied externally, by a camel's-hair pencil. See p. 49.

Benzoinum. Little used internally. Dose in emulsion, gr. iii to ʒss .

—— Tinctura. Dose, mxx to mxxx , suspended by treacle.

*Bichromate of Potash. Not used internally. An acrid poison.

Bismuthum Album. (Bism. Nitras.) Dose, gr. v to gr. x . The smaller dose has always appeared to me to answer as well as the larger one. It is advantageously combined with mineral acids, if it is to be frequently repeated, or with Magnes. Carb. if it is to be taken only now and then.

*—— Carbonas. Not officinal. Dose, gr. v to gr. x .
Incompatibles : Mineral Acids.

*—— et Ammoniaë Citras. Dose, gr. ii . See p. 50.

* **Bismuthi Liquor.** This is a Solution of Bismuth and Ammonia in Citric Acid. Dose, f ʒi. *Incompatibles*: It should be prescribed alone, or in combination with some bitter Infusion or Tincture. See p. 51.

Bone Black, or Ivory Black. Animal Charcoal. 1 part of Bone Black to 3 parts of Linseed Meal forms an invaluable poultice for offensive sloughing sores. I have long been in the habit of prescribing it internally along with Muriatic Acid and powdered Cinchona Bark in *Tabes Mesenterica* with very offensive stools, which it assists to correct. Dose, gr. v to gr. x for a child 3 or 4 years old. In Cancer of the Pylorus, in doses of ʒi to ʒss or more, made into biscuits, it often relieves the offensive eructations, and abates the distress of the patient from this source.

Boracic Acid. Not used internally.

Borax. Dose, as an emmenagogue gr. v to gr. x, as a gargle ʒi to ʒii in fl. oz. viii of water.

— **Honey of (Mel Boracis).** For a lotion or gargle, oz. i to oz. ii of the Mel Boracis in fl. oz. viii.

Bromine. Not used internally. See p. 52.

* **Bromide of Ammonium (not officinal).** Dose, gr. ii to gr. viii or more; larger doses are of doubtful advantage. *Incompatibles*: Mineral Acids and metallic tonics. See p. 43.

— **Potassium.** Dose, gr. v to gr. viii or more. See p. 119.

Bucco. Only used in Decoction or Infusion.

— **Infusum.** (Oz. ss in fl. oz. x.) Dose, fl. oz. i to fl. oz. ii; must generally be continued for weeks. May be combined with either Mineral Acids or Alkalies.

Cajuputi, generally called *Oleum Cajuputi*. Dose, gtt. ii to gtt. vi on Sugar.

- *Calabar Bean (not officinal). Gr. xii, a dangerous if not a fatal dose. See p. 53.
- *—— Extraet of, for contracting the pupil, a single very small drop. See p. 60.
- *—— Papers. See p. 60.
- Caleis Carbonas Præcipitata. Dose, gr. x to gr. xv, in the shape of Mistura Cretæ f ʒi.
- Hydras. Not used internally.
- Liquor. Dose, fl. oz. i to fl. oz. ii, in a eupful of milk.
- Caleis Liquor Saccharatus. Dose m xv to f ʒi, in a teaeupful of milk. See p. 100.
- Phosphas Præcipitata. Dose, ʒi to ʒi or more, made into Bread, or the same dose dissolved in Muriatie Acid.
- Sulphuratæ Liquor. See p. 101.
- Calomelas. Dose, gr. i to gr. x, according to the object, and the theoretial opinions of the practitioner.
- Incompatible*: Gum-water for making it up into pills.
- Calumba Infusion. (Oz. ss in fl. oz. x.) Dose, fl. oz. i.
- Tinctura. Dose, m xxx to ʒi.
- Calx. Not used internally.
- Chlorata. Sprinkled *ad lib.* upon the floor in siek rooms.
- — Liquor. Dose, m xv to m xxx, sufficiently diluted in fl. oz. i or fl. oz. ii of water. *Incompatibles*: everything execept Alkalies, Simple Syrup, or powdered Barks, such as Cinchona, Calumba, etc.
- Cambogia. Dose, gr. i to gr. iii; requires a large increase of dose if it is given frequently, and then it sometimes becomes a dangerous irritant; should always be combined with other purgatives and with aromatics.

Camphora. Dose, gr. i to gr. x.

— Aqua. Formerly called Mist. Camphoræ. fl. oz. i contains about gr. i of Camphor. Dose, fl. oz. i to fl. oz. ii.

— Linimentum. (Camphor and Oil.) Unstimulating.

— Linimentum Comp. (Camphor, Oil of Lavend., Liq. Ammon., and Rect. Spt.) Stimulating.

Camphoræ Spiritus. Dose, ℥x to ℥xl in milk or on sugar. If given in water the Camphor instantly separates.

— Tinct. eum Opio. Dose, ℥xxx to ʒii. Half an ounce contains about gr. i of Opium, and $\frac{3}{4}$ gr. of Camphor.

Cannabis Indicæ Extractum. Dose, gr. ii to gr. v.

— Tinctura. Dose, ℥v to ℥xv. Larger doses have been given, but they have not appeared to me of additional benefit. See p. 190.

Cantharidis Emplastrum. One part in three for making the blistering plaster.

— Linimentum. A blistering liquid. One application will sometimes suffice, but it cannot be relied on.

— Tinctura. Dose, ℥x to ℥xxx for an adult, three times a day. This may be continued for some time without producing strangury. For an infant in Chronic Hydrocephalus, ℥iii to ℥v three times a day. It may be usefully combined with Tinct. Ferri Mur.

— Unguentum. For keeping open a blister or issue.

Capsicum. Dose, gr. ii to gr. v.

— Tinctura. Dose, ℥xv to ℥xxx.

Carbo Animalis Purificatus. See Bone Black.

— Ligni. Only used for poultices. 1 part of

- Chareoal to 8 of mixed Bread and Linseed Meal is ordered in the Ph. Br. Animal Charcoal is far more useful, and the proportion of Charcoal should be greater than 1 part in 8. See p. 52.
- *Carbolic Acid. See Creasote, and also p. 61.
- Cardamomum. Dose, gr. ii to \mathfrak{z} i.
- Carui. Dose, gr. ii to \mathfrak{z} i.
- Oleum. Dose, gtt. ii to gtt. vi.
- Caryophyllum. Dose, from gr. ii to 1 or 2 eloves.
- Infusum. (Oz. $\frac{1}{4}$ in fl. oz. x.) Dose, fl. oz. i.
- Oleum. gtt. i to gtt. v.
- Cascarillæ Infusum. fl. oz. i in fl. oz. x. Dose, fl. oz. i.
- Cassia. The Pulp (the bark is now omitted). Dose, as a laxative \mathfrak{z} i to \mathfrak{z} ii, as a purgative oz. i. It is seldom given alone.
- Castoreum. Dose, gr. v to \mathfrak{z} ss to even \mathfrak{z} ii. Very little used.
- Tinetura. Dose, f \mathfrak{z} i to f \mathfrak{z} ii.
- Cataplasma Carbonis. See Carbo Ligni, above.
- Conii. 1 part of Conium leaf to 3 of Linseed Meal.
- Fermenti. 6 oz. of yeast to 14 oz. of flour.
- Lini. When Linseed Meal is used, Oil or Lard must be added at the time of making the poultice, which is not necessary if powdered Linseed is employed; the linseed meal makes a far nicer poultice than the powdered linseed.
- Sinapis. Half-and-half Mustard and Linseed Meal, made into a poultice with boiling water. For a speedy action there is no plan superior to taking mustard as it is prepared for the table, and spreading it thinly upon brown paper or common calico.
- Sodæ Chloratæ. Solution of Chlorinated Soda, diluted with 3 parts of water, and made into a poultice with Linseed Meal.

Catechu Nigrum. Used in the form of infusion, compound powder, and tincture. Dose, gr. v to gr. xv.

— Pallidum. Made also into lozenges. Dose, gr. $1\frac{1}{4}$ in each Lozenge.

Cera Alba. Not used internally.

— Flava. Not used internally.

Cerevisiæ Fermentum. Chiefly used medicinally for making the yeast poultice. Dose, when given internally, a teaspoonful to a tablespoonful three times a day in low fever, with a black tongue and offensive evacuations; or in cases of frequent boils may be swallowed alone or mixed with water.

*Cerii Oxalas. Dose, gr. ii. See p. 64.

Cetaceum. Sometimes boiled with milk for internal use in Dysentery or chronic irritable Diarrhœa. Dose, \mathfrak{z} i to \mathfrak{z} ii two or three times a day, boiled in a teacupful of milk, and drunk whilst still warm.

Cetraria, Decoction of. (Oz. i to Oi.) Dose, half a teacupful or more of the blancmange.

Chalk. Only used in combination with other things.

Chirata. Infusion, oz. ss in Oi. Dose, fl. oz. i.

— Tincture. Dose, \mathfrak{m} xxx to $\mathfrak{f}\mathfrak{z}$ i.

Chlori Liquor. $\mathfrak{f}\mathfrak{z}$ ii to fl. oz. i in fl. oz. viii of water.

The proportion must be according to the patient's palate if intended as a gargle, or the offensiveness of the sore if it is used externally. *Incompatibles*: it should be mixed simply with cold water, and kept *well corked in a cool place*.

*Chloric Ether. Dose, \mathfrak{m} xv to \mathfrak{m} xxx. This last dose is often very unpleasant to the patient. See Chloroformi Spiritus, below.

Chloride of Barium. Not used internally.

— of Calcium. Sometimes used as a substitute for Iodide of Potassium, when this disagrees. Dose, gr. ii to gr. v dissolved in water and syrup.

*Chlorodyne. Dose, $\mathfrak{m}\mathfrak{x}$ to $\mathfrak{m}\mathfrak{xxx}$. See p. 81.

Chloroform. Dose, gtt. ii or gtt. iii in a teaspoonful of good brandy. Much larger doses have been mentioned, but they have not received the approbation of the profession generally.

— Linimentum. Chloroform and Linim. Camphor, half-and-half.

— Spiritus. 1 part of Chloroform in 20. About half the strength of Chloric Ether. Dose, $\mathfrak{m}\mathfrak{xxx}$ to $\mathfrak{f}\mathfrak{v}$ i. Few patients can take the latter dose without objecting to it as being disagreeable.

*Chromic Acid. See p. 82.

Cinchona Flava. Dose, gr. xv as a tonic, \mathfrak{z} i to \mathfrak{z} ii in Ague. May be usefully combined with mineral acids.

— Flavæ Decoctum. Dose, fl. oz. i to fl. oz. iv.

— Flavæ Extract. Liquid. Dose, $\mathfrak{m}\mathfrak{viii}$ to $\mathfrak{m}\mathfrak{xv}$. See p. 87.

— Flavæ Infusum. Dose, fl. oz. i to fl. oz. ii.

— Flavæ Tinctura. Dose, $\mathfrak{m}\mathfrak{xxx}$ to fl. oz. ss.

— Pallida. Dose, etc., as above.

— Pallidæ Tinct. Comp. Dose, $\mathfrak{m}\mathfrak{xxx}$ to fl. oz. ss.

— Rubra. Dose, etc., as above.

*Cinchonidine. Dose, about the same as that of Quinine, or rather larger. See p. 78.

*Cinchonine, Salts of. Dose, about twice as much as those of Quinine. See p. 78.

Cinnamon. Dose, gr. v to gr. x. In Chronic Diarrhœa, either with or without sickness, a stick of common cinnamon 3 or 4 inches long, stewed for half an hour in half a pint of milk, with half an ounce of mutton suet, and then strained, is an excellent and palatable article of diet if taken whilst warm once or twice a day.

— Oleum. Dose, gtt. ii to gtt. v.

Coeculus Unguentum. 1 part of Coeculus to 6 of Lard. Used for killing lice.

Coeus. Dose, gr. ii to gr. v, with twice as much pearlash and plenty of syrup, two or three times a day, in Hooping Cough.

— Tinctura. Only used for its colour.

Colehici Cormus. Only used for making preparations.

— Extractum. And—

— Extractum Acetieum. Dose, gr. i to gr. ii. These are nearly twice the strength of former preparations of these names, and the effect of the dose must be carefully watched, to guard against depressing vomiting or purging. See p. 25.

— Semen. Only used in the form of tincture.

— Seminis Tinctura. Dose, ℥iii to f ʒi.

— Vinum. Dose, ℥xxx to f ʒi.

Collodium. May be rendered slightly flexible by adding 1 part of Glyeerine to 8 or 10 of Collodium. When extensively applied in Erysipelas, it is useful to dilute it with castor oil. See p. 83.

Coloeynthis. Dose, gr. v to ʒi.

— Extract. Comp. Dose, gr. ii to gr. iv. The griping sometimes produced is best prevented by a few grains (2 or 3) of Extr. of Hyoscyamus.

— Pilula Comp. Dose, gr. iii to gr. vi.

— Pilula et Hyoscyami. Dose, gr. iv to gr. viii.

*Confectio Amygdalæ. Dose, ʒi to ʒii.

*— Aromatica. Dose, gr. x to ʒi or ʒss.

— Piperis. (Black Pepper 1, Caraway $1\frac{1}{2}$, Honey $7\frac{1}{2}$ parts), *i. e.* gr. vi of Black Pepper in ʒi. Dose, half a teaspoonful to a teaspoonful two or three times a day for weeks at a time.

— Rosæ Caninæ. (Hips, Sugar, of each 1 part.) Dose, *ad libitum*.

— Rosæ Gallicæ. (Fresh Red Rose Petals 1, Sugar 3 parts.) Dose, *ad libitum*.

- Confectio Scammonii. (Scam. 1, Ginger $\frac{1}{2}$, Oil Caraway $\frac{1}{8}$, Oil Cloves $\frac{1}{16}$, Syrup 1, Honey $\frac{1}{2}$ part.) Dose, \mathfrak{z} i to \mathfrak{z} ss. 3 parts contain 1 of Scammony.
- Sennæ. (Senna 1, Coriander $\frac{1}{2}$, Figs 2, Tamarinds $1\frac{1}{4}$, Cassia pulp $1\frac{1}{4}$, Prunes 1, Liquorice juice $\frac{1}{16}$, Sugar 4 nearly.) Dose, \mathfrak{z} i to oz. ss, to be repeated if necessary, *i. e.* a teaspoonful to a large dessert-spoonful or more. Conf. Sennæ contains about one-twelfth its weight of Senna.
- Sulphuris. Dose, a dessert-spoonful to a table-spoonful. (Sulphur 4, Cream of Tartar 1, Syrup of Orange Peel 4 parts.)
- Terebinthinæ. (Ol. Tereb. 1, Liquorice Root 1, Honey 2 parts.) Dose, a teaspoonful if it is to be repeated and continued for some time; oz. ii to oz. iv at once if it is for tape-worm, *i. e.* two large tablespoonfuls or twice that quantity.
- Conii Fructus. Only used as a tincture.
- — — Tinctura. Dose, \mathfrak{m} xx to \mathfrak{m} xxx.
- Conium. The leaves and herb, used as a poultice. See Catapl. Conii.
- Extractum. Dose, gr. iii to gr. x. It is seldom wise to give the larger dose.
- Suceus. \mathfrak{m} xxx or \mathfrak{m} xl are almost equal to gr. iii of Extract. Dose accordingly. See p. 126.
- Copaiba. Dose, \mathfrak{z} ss, repeated as often as the stomach will bear it.
- Oleum. Dose, \mathfrak{m} xv to \mathfrak{m} xxx.
- Coriandri Oleum. Dose, gtt. ii to gtt. v.
- Coriandrum. Dose, gr. v to \mathfrak{z} i.
- Creasotum. Dose, gtt. i or gtt. ii in pill or mixture. The smaller dose is generally sufficient if the remedy does good at all. As a lotion gtt. ii to gtt. v, dissolved in 15 or 20 minims of strong Acetic Acid, and diluted with water to fl. oz. i. See Carbolic Acid, p. 61.

Creasoti Mistura. (Gtt. i in fl. oz. i.) Dose, fl. oz. i.

Creta Præparata. Only used in combination.

Crocus. Enters into innumerable preparations. Never used alone. Dose, gr. i, more or less.

— Tinctura. Only used for its colour.

Crotonis Oleum. Dose, gtt. i. It is seldom useful to repeat the dose more than once or twice. It may be given to a lunatic in mouldy cheese, and it is then swallowed at his meal without notice.

Cubebæ. Dose, ʒi to ʒi two or three times a day.

— Oleum. Dose, ʒx to fʒi. It is doubtful whether the oil is much stronger than the powdered cubebs.

*Cupri Ammonio-Sulphas. Dose, gr. ss to gr. i, mixed with sugar, two or three times a day for a fortnight, carefully watched lest it cause vomiting.

— Sulphas. Dose, gr. $\frac{1}{4}$ to gr. i as an astringent. As an emetic, gr. vii to gr. xv. Is a hazardous emetic.

Cusparia. Only used in infusion (oz. i in Oi). Dose of the infusion, fl. oz. i, combined with diluted Nitric Acid.

— Infusum. Dose, fl. oz. i.

Cusso. Dose, oz. ss to oz. i. See p. 86.

— Infusum. Dose, fl. oz. viii to fl. oz. xvi. See p. 86.

Decoctum Aloes Comp. (Ext. Al. Soc. 90 gr., Myrrh 60, Saffron 60, Pot. Carb. 40, Ext. Liquorice oz. ss, Tr. Card. Co. fl. oz. iv, Water to fl. oz. xvi.) Dose, fl. oz. ss to fl. oz. i. One fluid ounce contains gr. vss of Aloes.

— Cetrariæ. Dose, fl. oz. ii to fl. oz. iv. One pint contains an ounce.

— Cinchonæ Flavæ. (Oz. i in fl. oz. xvi.) Dose, fl. oz. i to fl. oz. ii.

- Decoetum Granati Radieis. (Oz. ii in Oi.) Dose, fl. oz. ii to fl. oz. iii every half-hour, until a pint has been taken on an empty stomach, or vomiting has been produced. To be followed by a dose of Castor Oil.
- Hæmatoxyli. (Logwood oz. i, Cinnam. ʒi in fl. oz. xvi.) Dose, fl. oz. i to fl. oz. ii. It may be taken in milk as an article of diet for weeks at a time, in habitual Mucous Diarrhœa, or in Chronic Dysentery. In these cases I prefer a decoction twice or three times as strong as the official one, the dose being proportionally smaller. When taken in milk, it is scarcely unpalatable.
- Hordei. Dose, *ad libitum* (oz. ii in Oiss).
- Papaveris. (Oz. ii of poppy-heads in fl. oz. xvi.) Chiefly used as a soothing fomentation.
- Pareiræ. (Oz. iiss in Oi.) Dose, fl. oz. i to fl. oz. ii, three times a day, to be continued for weeks. May be combined with mineral acids or alkalies.
- Quereus. (Oz. i in Oi.) Used chiefly as an astringent injection in Prolapsus Uteri or Leucorrhœa. It is a great objection that it stains the linen irretrievably. See note on "Galla."
- Sarzæ. (Oz. iiss in Oi.) Dose, fl. oz. i to fl. oz. ii.
- Sarzæ Comp. Sarz. oz. iiss, Sassafras ʒii, Guaiacæ Wood ʒii, Liquorice Root ʒii, Mezerion ʒi, Water to Oi. Dose, fl. oz. i to fl. oz. ii.
- Seoparii. (Oz. i in fl. oz. xvi.) Dose, fl. oz. ii to fl. oz. iv, well diluted with Barley-water or Cream of Tartar Water.
- Taraxaci. (Oz. i in Oi.) Dose, fl. oz. i to fl. oz. ii.
- *— Tormentillæ. Not official. Of very great virtue in the habitual Chronic Diarrhœa of delicate children. Should be taken in milk as an article of diet. See "Decoetum Hæmatoxyli," above, both

as regards properties and strength of preparation.
Dose, for children, fʒii to fl. oz. i; for adults, fl. oz. i to fl. oz. ii.

*Decoctum Tritici Repentis. (Oz. i in Oi.) Dose, fl. oz. viii to fl. oz. xx in the day. See p. 127.

Digitalinum. Dose, gr. $\frac{1}{100}$ to gr. $\frac{1}{50}$ or gr. $\frac{1}{20}$, carefully watched.

Digitalis. Dose, gr. i carefully increased to gr. ii or gr. iii.

— Infusum. Dose, fʒii to fl. oz. ss.

— Tinctura. Dose, mxxx to fʒi, or even fl. oz. ss.

Dulcamara. Only used in decoction or infusion.

— Infusum. (Oz. i to fl. oz. x.) Dose, fl. oz. i to fl. oz. iv. I have taken nearly half a pint a day for several weeks together, without any sensible effect of any kind.

Elaterium. Dose, gr. $\frac{1}{24}$ to gr. $\frac{1}{8}$, should always be combined with an aromatic. Many patients can bear a single dose of gr. $\frac{1}{12}$ once a day or every other day with advantage, who cannot take it more frequently, or in larger quantity without vomiting after every dose. Powdered Cinnamon appears to be one of the best aromatics for the purpose.

Elcni. Not used internally.

Emplastrum Ammoniaci cum Hydrargyro.

— Belladonnæ contains half its weight of Extr. Belladonnæ.

— Calefaciens.

— Cantharidis.

— Ferri (Roborans).

— Galbani.

— Hydrargyri.

— Lithargyri.

— Opii. 1 part of powdered Opium in 10.

— Picis.

Emplastrum Resinæ.

—— Saponis.

Enema Aloes. Gr. iv of Aloes to the fl. oz. i. As it is chiefly intended for dislodging thread-worms, the quantity used should not exceed 3 or 4 ounces, so that it may be retained for a time in the rectum, instead of being rejected immediately.

—— Assafœtidæ. fʒi of Tr. Assaf. in fl. oz. i of starch. The Ph. Br. gives the quantities for making 6 ounces in all, which appears to indicate that it intends that amount to be used at once. A more common Enema consists of fʒii to fl. oz. ss of the Tr. Assaf. in a pint of gruel.

—— Magnesiæ Sulphatis. Salts and Olive Oil each oz. i in fl. oz. xv of Starch.

—— Opii. mxxx of Tr. Opii in fl. oz. ii of Starch.

*—— Quassiæ (not officinal). Oz. ss of Quassia chips boiled in fl. oz. viii of water down to fl. oz. iv, and used at night in cases of thread-worms; the injection must be retained in the rectum as long as possible, and followed by a dose of Castor Oil in the morning. It is very useful.

—— Tabaci. ʒi of Tobacco in fl. oz. viii.

—— Terebinthinæ. Fl. oz. i of Ol. Tereb. in fl. oz. xv of Starch.

Ergota. Dose, as an excitant of uterine contractions ʒss or more. Many practitioners never give less than ʒii for a dose; but if they had tried the smaller quantity they would in most cases have found it sufficient. When given in cases connected with the spinal system of nerves, the dose is from gr. v to gr. x three times a day. It may be combined with tonics.

Ergotæ Extract. Liquid. (ʒi in fʒi.) Dose, mʒ or mxxv to mxxx or fʒii. See p. 88.

Ergotæ Infusum. (ʒii in fl. oz. x.) Dose, fl. oz. ii to fl. oz. x.

—— Tinctura. Dose, ʒxxx to fʒi.

Ether pure. Not used internally.

—— Spiritus. Intended as a substitute for Spt. Æth. S. Comp., Ph. L. Dose, ʒxxx to fʒi.

Extractum Aconiti. Dose, gr. i to gr. ii, to be very carefully watched, and not repeated at shorter intervals than six or eight hours.

—— Aloes Barbadosensis. Dose, gr. i to gr. iii.

—— Aloes Socotrinæ. Dose, gr. i to gr. iii.

—— Anthemidis. Dose, gr. i to gr. v.

—— Belæ Liquidum. Dose, fl. oz. ss three times a day for some time. See p. 48.

—— Belladonnæ. Dose, for internal use gr. $\frac{1}{8}$ to gr. ss. See Belladonnæ Extr. p. 210.

—— Calumbæ. Dose, gr. v. to gr. xx.

—— Cannabis Indicæ. Dose, gr. ss to gr. i or more.

—— Cinchonæ Flavæ Liquidum. Oz. ss of bark in fʒi. Dose, ʒviii to ʒxv. See p. 87.

—— Colchici. Dose, gr. i to gr. ii. See Colch. Extr. p. 25.

—— Colchici Aceticum. Dose, gr. i to gr. ii. See Colch. Extr. p. 25.

—— Colocynth Comp. (Coloc. 1, Ext. Al. Soc. 2, Seam. $\frac{2}{3}$, Soap $\frac{1}{2}$, Cardam. $\frac{1}{8}$, Proof Spirit q.s. to make an Extract.) Dose, gr. ii. to gr. iv.

—— Conii. Dose, gr. ii to gr. iv. Some prescribers give as much as gr. viii or gr. x, when it is not to be repeated.

—— Ergotæ Liquidum. fʒi contains ʒi of Ergot. Dose, ʒxxx to fʒi, p. 88.

—— Filicis Liquidum. Dose, ʒxxx to fʒi, after a six hours' fast. See p. 89.

*—— Fuci Vesiculosi. Dose, gr. ii to gr. iv. See p. 95.

- Extractum Gentianæ. Dose, gr. v to \mathfrak{z} i.
- Glyeyrrhizæ. Dose, *ad lib.*
- Hæmatoxyli. Dose, gr. x to \mathfrak{z} ss. See Decoet. Hæmattox. p. 220.
- Hyoseyami. Dose, gr. ii to gr. iv, carefully increased to gr. x if necessary.
- Jalapæ. Dose, gr. x to gr. xv. It is not materially more active than Jalap itself.
- Krameriæ. Dose, gr. v to \mathfrak{z} i.
- *—— Laricis. Dose, gr. ii to gr. v. See p. 99.
- Lupuli. Dose, gr. v to \mathfrak{z} i.
- Nucis Vomiciæ. Dose, gr. $\frac{1}{4}$ once a day for a child a year old, made into a very small pill with gr. i of Ferri Carb. Sacchar. or gr. i of Ferrum Redactum. It is easily swallowed when put into a spoonful of bread and milk. For an adult gr. $\frac{1}{4}$ to gr. ss two or three times a day, combined with an iron tonic. The pills are liable to become hard, and therefore only a few should be made at a time. They may be continued for a week at a time in the case of infants, and for two or three weeks in the case of adults.
- Opii. Opium loses about one-third its weight in making the extract, but the strength of the Extract is not found to be so much greater than that of Opium, as to affect the dose materially. Dose, gr. $\frac{1}{4}$ to gr. i according to circumstances.
- Opii Liquidum. Practically the same strength as Laudanum. Dose, \mathfrak{m} v to \mathfrak{m} xxx, according to the case and the object in view.
- Pareiræ Liquidum. Dose, \mathfrak{m} xxx to \mathfrak{f} \mathfrak{z} i three times a day for weeks.
- Quassiæ. Dose, gr. ii to gr. v.
- Rhei. Dose, gr. ii to gr. v.
- Sarsæ Liquidum. Fl. oz. i contains oz. i of Sarsa. Dose, \mathfrak{m} xxx to \mathfrak{f} \mathfrak{z} i.

Extractum Stramonii. Dose, gr. $\frac{1}{8}$ to gr. $\frac{1}{4}$. See Stramonii Semin. Extr., Table of Narcotics.

— Taraxaci. Dose, gr. x to \mathfrak{z} i.

*— Veratri Viridis. Dose, gr. $\frac{1}{4}$ to gr. ss. See p. 129.

Fel Bovinum Purificatum. Dose, gr. ii to gr. iv. See p. 90.

Note about Incompatibles with preparations of Iron.

—Astringent Infusions and Tinctures are often said to be incompatible with preparations of Iron; and in one sense they are so, as they form a more or less dark-coloured Tannate or Gallate of Iron. It is seldom, however, that they form a precipitate when mixed in the proportions commonly employed in medicine. There is frequently also some free acid in the mixture which dissolves the tannate; and even when this is not the case the free acid of the stomach dissolves the moist precipitate present in the mixture, and the Iron produces its full effect. In many cases, indeed, the combination of Iron tonics with Quinine or vegetable bitters is essential for the satisfactory action of this class of remedies. It must therefore be understood that, as a rule, astringent infusions and Tinctures are only so far incompatible, that they change the colour of the mixture.

Ferri Arsenias. Dose, gr. $\frac{1}{24}$ to gr. $\frac{1}{12}$.

— Carbonas Saccharata. Dose, gr. i for a young child, to gr. iii for an adult. A larger dose often causes headache. It should be given in pills or in simple syrup.

— et Ammoniae Citras. Dose, gr. v to gr. x. It may be given along with Alkalies, but not with Acids, except Prussic Acid.

— et Quiniæ Citras. Gr. vi contain about gr. i of

- Quinine. Dose, gr. vi to gr. x. It should not be combined with Alkalies or Acids, except Prussic Acid, which is too weak to decompose it.
- Ferri Iodidum. Dose, gr. iii. to gr. vi. A bad form of medicine, as it speedily decomposes into Peroxide of Iron and Iodine. It should be given in the form of pills or of syrup.
- Iodidi Pilula. One-third consists of Iodide of Iron. Dose, gr. v.
- Iodidi Syrupus. ℥xii contain about gr. i of Iodide of Iron. Dose, ℥xii to fʒss or fʒi diluted with simple water.
- Oxidum Magneticum. Dose, gr. v to ʒi.
- Perchloridi Liquor. Not used internally. Is almost a saturated solution, and is a powerful styptic.
- Tinctura. Dose, ℥x to ℥xxx.
- Pernitratidis Liquor. Dose, ℥xv. Is usefully combined with Infusion of Cuscuta and Laudanum in chronic mucous diarrhoea.
- Peroxidum. Dose, gr. x to ʒss.
- Peroxidum Hydratum. Dose, a tablespoonful every quarter of an hour for several doses. As an antidote in poisoning by Arsenic.
- Phosphas. Dose, gr. iii to gr. iv. Not so good a form as the next.
- Phosphatis Syrupus. Dose, fʒi (which contains gr. i) or fʒii. *Incompatibles*: Alkalies. Should be taken in simple water.
- *—— Sesquichloridi Tinct. Not now official by this name, which is changed to Tinct. Ferri Perchloridi.
- Sulphas. Dose, gr. iii to gr. x. When it is used externally in Erysipelas a saturated, or nearly so, solution (*i. e.* oz. ii or oz. iii in fl. oz. viii) is employed. *Incompatibles*: Alkalies decompose it and throw down the Oxide.

Ferri Sulphas Exsiccata. Dose, gr. iii to gr. viii.

— Sulphas Granulata. Dose, gr. iii to gr. x.

Ferrum Redactum. Dose, gr. i to gr. iii or more. It is so tasteless that it may be sprinkled between two pieces of bread-and-butter, and children will eat them without noticing it.

— Tartaratum. Dose, for children gr. iv to gr. x, for adults gr. xv to ʒss. It may be combined with Alkalies.

Note.—See note about Incompatibles, before Ferri Arsenias, above.

Ficus. Dose, *ad lib.* Split Figs soaked in Salad Oil are not unpalatable, and are more laxative than the figs alone.

Filix. Not used except in the form of Oil of Male Fern, or as it is now called Extr. Filicis Liquidum.

Fœniculum. Dose, gr. v to ʒss.

Fousel Oil. Not used internally. See Formulæ.

*Fucus Vesiculosus. Not officinal.

— Vesiculosus Extract. Dose, gr. ii to gr. iv, t. d., for one or two months. See p. 95.

Galbanum. Dose, gr. i to gr. iii.

Gallæ. Not used internally. Equal parts of powdered Galls and powdered Alum, tied up in a thick muslin bag, form an extremely valuable pessary in Prolapsus of the Uterus, especially in an early stage.

Note.—It does not stain the linen nearly so much as Decoct. Quercus, and is far more efficacious; when it has been worn some time as a pessary, the proportion of Alum sometimes requires to be reduced as it begins to irritate.

Gentiana. Chiefly used in infusion and tincture.

— Extractum. Dose, gr. v to ʒi.

- Gentianæ Infusum Comp. (ʒii in fl. oz. x.) Dose, fl. oz. i to fl. oz. ii.
- Tinctura. Dose, f ʒi to fl. oz. ss.
- Glycerinum. Chiefly used externally. Dose, internally, f ʒi in water.
- Glycyrrhiza. Only used medicinally, for making the Extract.
- Extractum. Dose, ʒi to *ad lib.*
- Granati Radix. Only used in the form of Decoction.
- (Radiceis) Decoct. Fl. oz. ii in Oi. Dose, fl. oz. ii to fl. oz. iii every half-hour. See p. 220.
- Guaiaci Lignum. Only used in the Decoct. Sar. Co.
- Mistura. Oz. ss of Guaiacum Resin in Oi. Dose, fl. oz. i three or four times a day. See next article, below.
- Resina. Dose, about gr. xi in fl. oz. i of Mist. Guaiaci. When used in threatened Quinsy, ʒi to ʒss repeated two or three times in all. Is easily mixed by shaking it up with Gum-water.
- Hæmatoxylum. Only used in the form of Decoction or Extract. See p. 220.
- Decoctum. See p. 220.
- Extractum. Dose, gr. x to ʒss.
- Hemidesmus. Only used as a flavouring substance in syrup.
- Hordeum. Oz. ii make about a pint of Barley-water.
- Hydrargyri Chloridum. Ought not to be prescribed now by this name, as the Ph. Br. uses the name Chloride of Mercury to indicate Corrosive Sublimate, whilst it has hitherto been employed instead of Calomel. See p. 141.
- Iodidum Rubrum. Dose, in pills or powder, gr. $\frac{1}{8}$ to gr. ss.
- Iodidum Viride. Dose, gr. $\frac{1}{4}$ to gr. ss.
- Nitratis Liquor Acidus. m i represents nearly

gr. i of Nitrate of Mercury. For a gargle, gtt. i or gtt. ii in fl. oz. i is as much as the palate or throat can bear with advantage. It has been beneficially applied undiluted to syphilitic ulcers in the throat, by means of a camel's-hair pencil; but death from spasmodic closure of the glottis has resulted in at least one case. It is a very valuable remedy when it is applied undiluted to syphilitic warts, by means of a camel's-hair pencil. It causes acute pain at the time, but the warts drop off in a few days, without leaving any wound behind them to be healed afterwards.

Hydrargyri Oxidum Rubrum. Only used to make the ointment. Gr. viii to ʒi .

*Hydrargyri Persulphuretum (Vermilion). Not official. Dose ʒss for mercurial fumigation, in secondary syphilitic eruptions or syphilitic sore-throat.

Hydrargyrum. If used internally, a teaspoonful every two or three hours, until globules appear in the bed.

— Ammoniatum. Only used to make the Ointment. Gr. viii to ʒi .

— Corrosivum Sublimatum. Only used in solution. Dose, gr. $\frac{1}{32}$ to gr. $\frac{1}{16}$.

— Corrosivum Sublimatum, Solution of. Must not be understood as representing the Liq. Hydrargyri Bichlor. Ph. L. See p. 17.

— cum Creta. Dose, gr. i. to gr. x.

Hydrochloric Acid. Applied undiluted, by a camel's-hair pencil, to the mouth in profuse mercurial salivation. See p. 202.

— Acid diluted. Dose, mxx to mxxx .

*Hydrocotyle, Syrup of. Dose ʒi to fl. oz. ss or fl. oz. i. See p. 95.

Hydrocyanic Acid. Dilut. Dose, miii to m v .

- *Hydrogen, Peroxide of. Dose, f ʒi to fl. oz. ss well diluted. See p. 109.
- Hyoseyamus Extract. Dose, gr. ii to gr. v.
- Tincture, Dose, mxxx to f ʒi.
- *Hypophosphite of Lime. Dose, gr. iii to gr. xiv. See p. 96.
- Syrup of (Procter's). Dose, ʒi to oz. ss. See p. 97.
- Hypophosphites, Syrup of (Parrish's). Dose, ʒi to oz. ss. See p. 98.
- Hyposulphite of Soda. Dose, gr. x to gr. xv; for a Lotion, ʒi in fl. oz. i.
- Indigo. Not used internally.
- Infusum Anthemidis. (oz. ss in fl. oz. x.) Dose, as a stomachic fl. oz. ii to fl. oz. iv, as an emetic fl. oz. viii to fl. xvi.
- Aurantii. (oz. ss in fl. oz. x.) Dose, fl. oz. i.
- Bueeo. (oz. ss in fl. oz. x.) Dose fl. oz. i to fl. oz. ii; must be long continued.
- Calumbæ. (fl. oz. ss in fl. oz. x.) Dose, fl. oz. i.
- Caryophylli. (ʒii in fl. oz. x.) Dose, fl. oz. i.
- Casearillæ. (oz. i in fl. oz. x.) Dose, fl. oz. i.
- Catechu. (Catechu, gr. xvi; Cinnamon, gr. iii; Water, oz. i.) Dose, fl. oz. ss = gr. viiss of Catechu, or fl. oz. i = gr. xv of Catechu. Should not be combined with Iron.
- Chirataë. (ʒii in fl. oz. x.) Dose, fl. oz. i.
- Cinchonæ Flavæ. (oz. ss in fl. oz. x.) Dose, fl. oz. i.
- Cuspariæ. (oz. ss. in fl. oz. x.) Dose, fl. oz. i.
- Cusso. (ʒii in fl. oz. iv.) Dose, fl. oz. viii = oz. ss of Cusso. See p. 86.
- Digitalis. (oz. ss in oz. x.) Dose, f ʒii to fl. oz. ss.
- Duleamaræ. (oz. i in fl. oz. x.) Dose, fl. oz. ii to fl. oz. iv. See Dulcamara, p. 221.
- Ergotæ. (ʒii in fl. oz. x.) Dose according to

the object in view; fl. oz. i contains gr. xii of Ergot.

Infusum Gentianæ Comp. (Gent. oz. $\frac{1}{4}$; Bitter Orange Peel, ʒss; Coriander, ʒss; Proof Spirit, fl. oz. ii; Water, fl. oz. viii.) Dose, fl. oz. i.

— Krameriæ. (oz. ss. in fl. oz. x.) Dose, fl. oz. i.

— Lini. (Linseed, gr. clx; Liquorice Root, ʒi; Water, fl. oz. x.) Linseed Tea. Dose, *ad lib.*

— Lupuli. (oz. ss. in fl. oz. x.) Dose, fl. oz. i.

— Maticæ. (oz. ss in fl. oz. x.) Dose fl. oz. i.

— Quassia. (ʒi in fl. oz. x.) Dose, according to the nation of the prescriber. It is equal to D., twice as strong as E., and three times as strong as L. Dose, therefore, for L. and E. will be about fl. oz. ss; for D. probably fl. oz. i, as heretofore.

— Rhei. (ʒii in fl. oz. x.) Dose, fl. oz. i. It is only half the strength of E. Dose, therefore, for E. probably fl. oz. ii.

— Rosæ Acidum. (Rose petals ʒii, Acid S. Dil. f ʒi; Water, fl. oz. x.) Dose, fl. oz. i.

— Senegæ. (oz. ss. in fl. oz. x.) Dose, fl. oz. i.

— Sennæ. (Senna, oz. ss; Ginger, ʒss; Water, fl. oz. x.) Fl. oz. i contains nearly ʒss of Senna. Dose, fl. oz. ss to fl. oz. i, repeated or not, according to circumstances.

— Serpentariæ. (ʒii in fl. oz. x.) Dose, fl. oz. i.

*— Tritici repentis. (oz. i in fl. oz. xx.) Dose, fl. oz. viii to fl. oz. xx in the day. See p. 127.

— Uvæ-Ursi. (oz. ss in fl. oz. x.) Dose, fl. oz. i to fl. oz. ii. Must be long continued.

— Valerianæ. (ʒii in fl. oz. x.) Dose, fl. oz. i.

Iodine. Seldom prescribed in the solid form, owing to the local irritation which it occasions.

Iodum. New name for Iodine; the same remarks apply as for Iodine above.

Iodi Linimentum. See p. 100.

—— Tinctura. See p. 257.

—— Unguentum Comp. See pp. 166, 263.

Ipecacuanha. Dose, gr. ss to gr. i as a diaphoretic, but even a single grain often causes vomiting. As an emetic, gr. iii for a child, or gr. viii to gr. xv for an adult, to be repeated every fifteen minutes until it acts. Its action, when slow, may be assisted by the addition of a spoonful of lemon-juice.

—— Pulvis cum Opio. Gr. i of Ipec. and gr. i of Opium in gr. x.

—— Trochisci Morphine et Ipecac. Gr. $\frac{1}{30}$ of Morph. Mur. and gr. $\frac{1}{12}$ of Ipec. in each lozenge.

—— Vinum. (oz. i in Oi.) Dose, mxxx to f ʒi for an adult. For an infant, mii to mxxv as an expectorant, according to the age of the child, or mxxx every fifteen minutes till it acts as an emetic.

Jalap. Dose, gr. x to ʒi.

—— Extractum. Dose, gr. x to gr. xv.

—— Pulv. Comp. (1 part of Jalap in 3 of the Comp. Powder. There are 2 parts of Cream of Tartar and a flavour of Ginger.) Dose, ʒss, to be repeated if necessary.

Jalapæ Resina. Dose, gr. ii to gr. v. It is apt to gripe severely unless well diluted with some aromatic powder.

—— Tinctura. (oz. iiss in Oi.) Dose, f ʒi to fl. oz. ss.

Juniperi Oleum. Dose, gtt. ii to gtt. v.

—— Spiritus. mx contains mi of oil. Dose, mx to mxxx.

Kamela. Dose for a man, ʒi repeated every three hours for three times, unless it operates in the meantime; for a delicate woman, about half that dose. See p. 98.

Kino. Dose, gr. x to ʒi. Generally given in the form of Pulv. Kino cum Opio, or of Tincture.

- Kino Pulvis cum Opio. Gr. xx contain gr. i of Opium, xv of Kino, and iv of Ginger. Dose, \mathfrak{z} i.
- Tinctura. (oz. ii in Oi.) Dose, mxxx to f \mathfrak{z} i.
- Kousso. Dose, oz. ss. to oz. i. See Cusso.
- Infusum. (\mathfrak{z} ii in fl. oz. iv.) Dose, fl. oz. viii or fl. oz. xvi.
- Krameria. Never prescribed alone in powder. Dose, gr. x to \mathfrak{z} ss.
- Extractum. Dose, gr. v to \mathfrak{z} i.
- Infusum. (oz. ss in fl. oz. x.) Dose, fl. oz. i.
- Tinctura. Dose, mxxx to f \mathfrak{z} i.
- *Larch, Extract of. Dose, gr. ii to gr. v. See p. 99.
- Tincture of. (oz. i in Oi.) Dose, mxxx to f \mathfrak{z} ii. See p. 99.
- Laurocerasus. Only used as Aq. Laurocerasi. Dose of the Aqua, mxx to mxxx.
- Lavandulæ Oleum. Not used medicinally by itself.
- Limonis Cortex. Only used for flavouring.
- Oleum. Dose, gtt. i to gtt. iii. It has a strong flavour.
- Succus. Dose, fl. oz. ss to fl. oz. ii, twice a week as a prophylactic against Scurvy; fl. oz. iv to fl. oz. x daily in Rheumatic Fever.
- Syrupus. Dose, f \mathfrak{z} i to fl. oz. ss.
- Tinctura. Dose, f \mathfrak{z} i.
- Lini Farina. Only used for poultices, p. 214.
- Oleum. Only used for liniments.
- Semen. For making linseed tea. \mathfrak{z} vi to Oi.
- Linimentum Aconiti. mxxx, to be applied externally, and carefully watched. See p. 31. I have seen a single application of it produce intense tingling for hours.
- Ammonix. Liq. Ammon. (weak) 1, Olive Oil 3 parts. *Ad libitum*.
- Belladonnæ. mxxx to be applied externally by a camel's-hair pencil. See p. 32.

Linimentum Calcis. Lime Water and Olive Oil, equal parts.

—— Camphoræ. Camphorated Oil. Oily and unstimulating.

—— Camphoræ Comp. Alcoholic and very stimulating.

—— Cantharidis. An Ethereal Extract of Cantharides. Although a single application frequently blisters, it is not safe to rely upon one application only; but it evaporates so rapidly, that it can be painted on the skin several times in a few minutes.

—— Chloroformi. Half-and-half Chloroform and Camphorated Oil.

—— Crotonis (Croton Oil 1 part, Olive Oil 7 parts). To be rubbed or applied over the surface intended to be made sore two or three times a day until the effect is produced. A single application sometimes suffices. See p. 26.

—— Hydrargyri. Blue Ointment oz. i, Liq. Ammon. and Lin. Camph. each fl. oz. i.

—— Iodi (Iodine oz. $1\frac{1}{4}$, Potas. Iod. oz. ss, Spt. Vini Rect. fl. oz. v). A very strong alcoholic solution of Iodine and Iodide of Potassium. Should be applied by a sponge or camel's-hair pencil. Causes most acute pain for fifteen or twenty minutes, and frequently raises a blister.

—— Opii. Half-and-half Opodeldoc and Laudanum.

—— Saponis. Opodeldoc.

—— Terebinthinæ. A stimulating form of resin ointment, rather than a liniment in the common acceptance of the word. See p. 146.

—— Terebinthinæ Aceticum. Oil of Turpentine, Acetic Acid, and Camphor Lin., equal parts.

Liquores. For the table of their strength see p. 16.

Liquor Ammoniac. One-third the strength of Liq. Ammon. Fort. About 11 per cent of Ammonia.

Liquor Ammoniae Acetatis. Dose, \mathfrak{mxxx} to $\mathfrak{m xl}$. In prescribing, fl. oz. ss or $\mathfrak{f 5v}$ may be used in an fl. oz. viii mixture.

— Ammoniae Fortior. Three times the strength of Liq. Ammon. Raises a blister when applied to the Skin. Contains 32.5 per cent. of Ammonia.

— Antimonii Terechloridi. Only used for obtaining Oxide of Antimony.

— Arseniealis. Gr. iv of Arsenious Acid in fl. oz. i. Dose, gtt. iii to gtt. v, on a full stomach, to be increased very carefully if at all. Is most suitably prescribed in simple water.

— Atropiae. (Gr. iv in fl. oz. i.) Not used internally. Gtt. i dilates the pupil in about 15 minutes.

* — Bismuthi. Dose, $\mathfrak{f 5i}$ (contains gr. i of Oxide of Bismuth). May be combined with bitter infusions.

— Caleis. Dose, fl. oz. ss to fl. oz. ii in a eupful of milk as an article of diet.

— Caleis Chloratæ. Dose, $\mathfrak{m xv}$ to $\mathfrak{m xx}$ in fl. oz. i of water. May be advantageously given along with powdered Cinchona or Calumba.

— Caleis Saccharatus. About twelve times the strength of Lime Water. Dose, $\mathfrak{m xxx}$ to $\mathfrak{f 5i}$ in a teaspoonful of milk. See p. 100.

* — Caleis Sulphuratæ. Only used externally. Sometimes requires dilution. See p. 101.

— Chlori. A nearly saturated solution of Chlorine Gas in Water. For a gargle or lotion, $\mathfrak{f 5ii}$ or fl. oz. i in fl. oz. viii of water, according to the palate of the patient, or the offensiveness of the sore.

— Ferri Perchloridi. A nearly saturated solution of Perchloride of Iron. A powerful styptic. Not used internally.

— Ferri Pernitratis. Dose, $\mathfrak{m xv}$.

**Liquor Hydrargyri Biehloridi*, Ph. L. Not now official. (Gr. ss in fl. oz. i.) Dose, \mathfrak{mxxx} to $\mathfrak{f\zeta i}$, which equal gr. $\frac{1}{32}$ to gr. $\frac{1}{16}$. Is often advantageously combined with powdered Cinchona. See *Solution of Corrosive Sublimate*, p. 17.

— *Hydrargyri Nitratis Acidus*. \mathfrak{mi} represents nearly gr. i of Nitrate of Mercury. See *Hydr. Nitr. Liq. Acid.*, p. 228.

— *Morphiæ Hydrochloratis*. Gr. iv in fl. oz. i. Is intended to be about as strong as *Laudanum*. Dose, \mathfrak{mv} to \mathfrak{mxxx} , according to circumstances.

— *Plumbi Subacetatis*. Not used in its undiluted form.

— *Plumbi Subacetatis Dilutus*. $\mathfrak{f\zeta i}$ of strong *Liquor Plumbi* in fl. oz. x.

— *Potassæ*. Dose, \mathfrak{mxv} to \mathfrak{mxxx} , or $\mathfrak{f\zeta i}$, or even $\mathfrak{f\zeta ii}$, sufficiently diluted in veal broth or milk. The larger dose is only given for the removal of fatty tumours.

— *Potassæ Permanganatis*. Dose, internally, gtt. iii to gtt. v, or even more, in fl. oz. i of simple water. As a lotion, $\mathfrak{f\zeta i}$ to $\mathfrak{f\zeta ii}$ in fl. oz. viii of water. See p. 113.

— *Sodæ*. Dose, \mathfrak{mxv} to \mathfrak{mxxx} .

— *Sodæ Arseniatis*. (Gr. iv in fl. oz. i.) Dose, gtt. iii to gtt. v, in water, to be taken during a meal.

— *Sodæ Chloratæ*. Dose, \mathfrak{mxv} to \mathfrak{mxxx} in fl. oz. i of water.

— *Strychniæ*. (Gr. iv in fl. oz. i.) Dose, gtt. iv (gr. $\frac{1}{30}$) to gtt. viii (gr. $\frac{1}{15}$), twice a day.

Lithargyrum. Only used for making the preparations.

Lithia Water. Aerated. Gr. ii to gr. v in each bottle. See p. 104.

Lithiæ Carbonas. Dose, gr. ii to gr. vi.

Lithiæ Citras. Dose, gr. x to gr. xv.

Litmus Tincture. Not used internally.

Lobelia. Only used as a tincture.

— Tinctura. Dose, mxx to mxxx.

Lobeliæ Tinctura Ætherea. Dose, mxxv to mxxx.

Lupulus. Used sometimes as a poultice or pillow, but chiefly in the form of infusion or tincture.

— Extractum. Dose, gr. v to ℥i.

— Infusum. Dose, fl. oz. i to fl. oz. iv.

— Tinctura. Dose, fʒi to fl. oz. ss or fl. oz. i.

Magnesia. When prescribed simply as Magnesia, the heavy form is now to be dispensed, which is contrary to previous usage, which required the addition of Ponderosa when the heavy preparation was intended. Dose gr. x to gr. xv. See next article, below.

— Levis. If the Light Magnesia is intended, it must now be specified in the prescription, otherwise the Heavy Magnesia will be dispensed. It is incompatible with acids, but it is sometimes combined with Acetum Colchici in prescriptions for gout, in order to neutralize the free acid. When the Magnesia has been freshly calcined, it is liable to form an insoluble, tenacious mass of subsulphate, if it is combined with Sulphate of Magnesia and mucilaginous preparations, such as those of Squill or Colchicum, or with Acacia mixture. Dose, gr. x to gr. xv.

— Carbonas. If this is prescribed without comment, the heavy preparation will now be dispensed. (See note on Magnesia, above.) Dose, gr. x to gr. xv.

— Carbonas Levis. If the light preparation is wanted, it must be specially ordered, as the Pharmacopœia now indicates the Heavy Carbonate by

the name of Carbonate alone. This preparation and the last may be combined with Salts, or with Acetum Colehici. (See note on Magnesia Levis.)

- * Magnesia, Fluid. About gr. xvii of Magnes. Carb. in fl. oz. i, dissolved by excess of Carbonic Acid. Dose, fl. oz. ss to fl. oz. i.

— Sulphas. The nauseous taste of this medicine is very much disguised by adding about an eighth part of Bicarbonate of Soda to the dose. No precipitate is formed. It may also be combined with the diluted mineral acids, or the soluble sulphates. Dose, ζi frequently, or oz. i for an active purgative at one dose.

- * Manganese, Saccharated Carbonate with Iron. Dose, gr. iii.

Manna. Dose, oz. ss to oz. i.

Mastiche. Not prescribed internally.

Matiea. Only used in the solid form as a styptic, by applying the *under* surface of the leaf to the wounded part.

— Infusion. Dose, fl. oz. i to fl. oz. ii.

Mel. Dose, a teaspoonful to *ad lib.*

— Boracis. (ζi of Borax in oz. i.) Oz. i to oz. ii are made into an eight-ounce lotion or gargle.

Menthæ Piperitæ Oleum. Dose, gtt. i to gtt. iii.

— Viridis Oleum. Dose, gtt. i to gtt. iii.

Mezereum. Never prescribed alone. Enters into the Decoct. Sarz. Comp., which contains gr. iii of Mezereum in each fl. oz. i.

Mistura Ammoniaci. (Ammoniacum oz. $\frac{1}{4}$ in fl. oz. viii.) Dose, fl. oz. ss to fl. oz. i, as a vehicle for stimulating cough medicines.

— Amygdalæ. (Pulv. Amygd. Co. oz. iiss in oz. i.) Dose, fl. oz. i to fl. oz. ii, as a vehicle for demulcent cough medicines, or for Liquor Potassæ in Gonorr-

rhœa, or for Oil of Turpentine, which scarcely tastes in it.

Mistura Creasoti. (Creasote, m i ; Glac. Acet. Acid, m i ; Spt. Junip. m ii ; Syrup, ʒss ; Water, oz. i.) Dose, fl. oz. i. , contains m i of Creasote. See Acid, Carbolic, p. 61.

— Cretæ. (Chalk, ʒii ; Acacia, ʒii ; Syrup, oz. ss ; Cinnamon Water, fl. oz. viiss.) Dose, fl. oz. i added to astringent tinctures and Opium. Must not be continued many days. If it does no good quickly, it should be changed for some other astringent.

— Ferri Comp. (Ferri Sulph. ʒss ; Pot. Carb. gr. xxv ; Myrrh, ʒi ; Sugar, ʒi ; Spt. Myrist. ʒi ; Aq. Rosæ, fl. oz. viii.) Dose, fl. oz. i. The bottle should be very carefully corked. It is sometimes usefully combined with Prussic Acid in Phthisis, though the mixture is unchemical, and changes the colour of the medicine.

— Guaiaci. (Guaiac. Resin, oz. ss ; Sugar, oz. ss ; Acacia, ʒii ; Aq. Cinnam. Oi.) Dose, fl. oz. i three or four times a day, until hot sweating, or vomiting, with or without purging, is produced.

— Scammonii. Dose, fl. oz. ii , which consists of gr. iv. of Resin of Scammony, diffused in milk. The compilers of the Pharmacopœia appear to consider this the proper dose, as they have altered the amount of Scammony from gr. vii to gr. iv , and made the total quantity of the mixture only fl. oz. ii.

Mori Succus. Only used for making the syrup, for the sake of its colour.

*Morphiæ Acetas. Not now officinal. May be combined with Nitrate of Silver without decomposing it. Dose, $\text{gr. } \frac{1}{4}$ is about equal in effect to gr. i of Opium.

- Morphiæ Hydrochloras. Dose, gr. $\frac{1}{4}$ is about equal in effect to gr. i of Opium. *Incompatible*: Nitrate of Silver in solution, but not in pill.
- Hydrochloratis Liquor. (Gr. iv in oz. i.) Dose, $\mathfrak{m}\mathfrak{v}$ to $\mathfrak{m}\mathfrak{x}\mathfrak{x}\mathfrak{x}$.
- Morrhæ Oleum. Dose, fl. oz. ss to fl. oz. i.
- Moschus. Gr. ii to gr. x. It is very seldom used, and might very well have been omitted from the Pharmacopœia.
- Mucilago Acaciæ. (Gum 4, Water 6 parts.) Dose, fl. oz. i in cough medicines.
- Amyli. (ʒii in fl. oz. x.) *Ad lib.* in injections.
- Tragacanthæ. (Gr. c. in fl. oz. x.) Dose, fl. oz. i.
- Myristica. Dose, gr. i or gr. ii. Only prescribed in Pulv. Aromat. and Tinct. Lavand. Comp.
- Adeps. Enters into Emplast. Picis.
- Oleum. Dose, gtt. i to gtt. ii.
- Spiritus. Dose, $\mathfrak{m}\mathfrak{x}$ to $\mathfrak{m}\mathfrak{x}\mathfrak{x}\mathfrak{x}$; $\mathfrak{m}\mathfrak{x}$ contains $\mathfrak{m}\mathfrak{i}$ of the oil.
- Myrrha. Dose, gr. i to gr. iii.
- Tinctura. Dose, $\mathfrak{m}\mathfrak{x}\mathfrak{x}\mathfrak{x}$.
- Nectandra. Not used internally. Only furnishes Bebericæ Sulphas.
- Nitrate of Potash. Dose, gr. i for an infant, to gr. x or ʒi for an adult, in cases of Rheumatic Fever.
- Soda. Not used internally, though there is no apparent reason why it should not be used in the same cases and doses as Nitrate of Potash.
- Nitrite of Soda. Only used for furnishing Spirit of Nitrous Ether. Almost always very impure.
- Nux Vomica. Dose of the powder (which is not often used), gr. ii to gr. iv.
- Extract of. Dose, gr. $\frac{1}{4}$ to gr. ss. I have never found it necessary to exceed the last dose, but some

practitioners give gr. i to gr. ii. I have often given gr. $\frac{1}{4}$ once or twice a day to infants of a year old, with benefit, in Chronic Diarrhœa, arising from want of digestive power. See Ferrum Redactum, p. 227, and Ext. Hæmatox., p. 224.

Nux Vomica, Tincture of. Dose, $\mathfrak{m}\mathfrak{xv}$ to $\mathfrak{m}\mathfrak{xxx}$.
 $\mathfrak{m}\mathfrak{x}\mathfrak{i}$ equal gr. i of powdered Nux Vomica Seed.

Olea Destillata. As a general rule, the new Pharmacopœia orders $\mathfrak{m}\mathfrak{i}$ of the volatile oils to be dissolved in $\mathfrak{m}\mathfrak{x}$ of spirit to make the present "Spirits." In the old Ph. D. the solutions of this strength were called "Essences." In the old Ph. L. E. no rule of this kind was observed, and the spirits were of very variable strength.

Oleum Amygdalæ. Little used internally. Dose, fl. oz. ss to fl. oz. i.

— Anethi. Dose, gtt. i to gtt. iii.

— Anisi. Dose, gtt. i to gtt. iii.

— Anthemidis. Dose, gtt. i to gtt. iii.

— Cajuputi. Dose, gtt. ii to gtt. vi.

— Carui. Dose, gtt. i to gtt. iii.

— Caryophylli. Dose, gtt. i to gtt. iii.

— Cinnamomi. Dose, gtt. i to gtt. iii.

— Copaibæ. Dose, $\mathfrak{m}\mathfrak{xx}$ to f $\mathfrak{z}\mathfrak{i}$.

— Coriandri. Dose, gtt. i to gtt. iii.

— Crotonis. Dose, gtt. i to gtt. ii. Seldom desirable to go beyond this dose.

— Cubebæ. Dose, $\mathfrak{m}\mathfrak{xxx}$ to f $\mathfrak{z}\mathfrak{i}$.

— Juniperi. Dose, gtt. ii to gtt. v.

— Lavandulæ. Seldom used internally. Dose, gtt. i to gtt. iii.

— Limonis. Dose, gtt. i to gtt. iii.

— Lini. Not used internally.

— Menthæ Piperitæ. Dose, gtt. i to gtt. iii.

— Menthæ Viridis. Dose, gtt. i to gtt. iii.

- Oleum Morrhuæ. Dose, f ʒi to fl. oz. i.
- Myristicæ. Dose, gtt. i to gtt. iii.
- Olivæ. Seldom used internally except as Salad Oil. Dose, for a laxative injection, fl. oz. i. See Ficus, p. 227.
- Pimentæ. Dose, gtt. i to gtt. iii.
- Ricini. Dose, f ʒss for an infant, to fl. oz. i for an adult.
- Rosmarini. Seldom used internally. Chiefly employed in the form of spirit, as an ingredient in hair washes, and in embrocations.
- Rutæ. Dose, gtt. i to gtt. iii.
- Sabinæ. Dose, ʒ xv to ʒ xxx.
- Terebinthinæ. Dose, ʒ xv to ʒ xxx, if it is to be given repeatedly in rheumatic affections, or fl. oz. ss to fl. oz. i for a single dose for tape worms, or as a purgative.
- Olivæ Oleum. See Oleum Olivæ, above.
- Opium. Dose, gr. ʒ to gr. ii or gr. iii, according to the object in view.
- Ox Bile. Seldom used except in the form of an inspissated extract. The Bile itself is however sometimes given in doses of 10 drops, to be taken in milk.
- Oxalic Acid. Not used internally.
- Oxymel. Dose, f ʒi, frequently.
- *— Scillæ. Dose, ʒ xxx to f ʒi.
- Papaver (Poppy Heads). Not generally used by weight in ordinary cases, but 3 or 4 poppy-heads are employed, according to their size, in order to make a pint of poppy-head decoction.
- Pareira. Only used in some prepared form.
- Decoction of. Dose, fl. oz. i, to be continued a long time.
- Extract (Fluid). Dose, f ʒi; equal to ʒi of Pareira.

- *Pepsin. Dose, gr. i. to gr. ii for an infant, gr. xv for an adult. See p. 106.
- *—— Wine. Dose, a teaspoonful to a dessert or tablespoonful. See p. 108.
- *Peroxide of Hydrogen. Dose, f ʒi to fl. oz. ss. See p. 109.
- Phosphorus. When placed in warm (not hot) Olive Oil, a small quantity (about gr. iv in fl. oz. i) is dissolved, and forms an oil, which is luminous in the dark. The dose of this oil is $\mathfrak{m}v$ to $\mathfrak{m}x$, which contains about gr. $\frac{1}{24}$ to gr. $\frac{1}{12}$ of Phosphorus. It has been found to enhance the effect of Cod Liver Oil in Phthisis, and has been used with advantage in some cases of Epilepsy.
- *Phosphorized Oil. See Phosphorus, above. Gr. xii of phosphorus, cut into thin slices, are melted in fl. oz. i of almond oil by the aid of hot water; about gr. iv are dissolved. Dose, $\mathfrak{m}v$ to $\mathfrak{m}x$, added to Cod Liver Oil or stirred up with milk.
- *Physalis Alkekengi. See p. 110.
- Pilula Aloes Barbadosensis. Dose, gr. v to gr. x, h. s. s. Aloes Barb. 2, Hard Soap 1, Conf. Rosæ 1, Oil of Caraway $\frac{1}{8}$ part.
- Aloes Socotrinæ. Dose, gr. v to gr. x, h. s. s. Aloes Soc. 2, Hard Soap 1, Conf. Rosæ 1, Oil of Nutmeg $\frac{1}{8}$ part.
- Aloes et Assafœtidæ. Dose, gr. v., h. s. s., or n. et m. Aloes Soc., Assaf., Hard Soap, Conf. Rosæ, of each 1 part.
- *—— Aloes et Ferri. Ferri Sulph. 3, Aloes Barb. 2, Aromatic Powder 6, Conf. Rosæ 8 parts. Dose, gr. v., n. et m.
- Aloes et Myrrhæ. Dose, gr. v, o. n. or n. et m. Aloes Soc. 2, Myrrh 1, Saffron $\frac{1}{2}$, Conf. Rosæ $2\frac{1}{2}$ parts.

- Pilula Assafoetidae Comp. Dose, gr. v, h. s. s., or n. et m. Assaf., Galb., Myrrh, of each 2, Treacle 1 part.
- Calomelanos Comp. Gr. v contain gr. i of Calomel. Dose, according to the object in view, gr. v once, twice, or three times a day. Calom. 1, Antim. Sulph. 1, Guaiac. 2, Castor Oil 1 part.
- Cambogiæ Comp. Dose, gr. v to gr. x. Should not be frequently repeated. Gamb., Aloes Barb., Pulv. Arom., of each 1, Hard Soap 2, Syrup q. s.
- Colocynth. Comp. Dose, gr. v. Coloc. 1, Aloes Barb. 2, Seam. 2, Potas. Sulph. $\frac{1}{4}$, Oil of Cloves $\frac{1}{4}$, Aqua q. s.
- Colocynth. et Hyoscyami. Dose, gr. v. to gr. x. Pil. Coloc. Co. $5\frac{1}{2}$, Ext. Hyos. 3 parts.
- Ferri Carbonatis. Gr. v contain gr. iii of Saccharated Carbonate of Iron. Dose, gr. v, t. d.
- Ferri Iodidi. Gr. v contain nearly gr. ii of Iodide of Iron. Dose, gr. v, n. et m., or t. d.
- Hydrargyri. Dose, gr. ii to gr. v, according to the object in view; the smaller dose will be given repeatedly to produce a constitutional mercurial effect, the larger one will be given when intended a purgative.
- Opii. Gr. v contain gr. i of Opium.
- Plumbi cum Opio. Gr. iv contain gr. ss of Opium, and gr. iii of Acetate of Lead. Dose, gr. iv three or four times a day, according to the urgency of the case. *Incompatibles*: Sulphuric Acid or Sulphates, such as Alum, should not be given at the same time with Acetate of Lead, as they form an insoluble and inert Sulphate of Lead. These pills should not be made up long beforehand.
- Rhei Comp. Dose, gr. v to gr. x. Rhub. 1, Aloes Soc. $\frac{3}{4}$, Myrrh, Hard Soap, of each $\frac{1}{2}$, Treacle $1\frac{1}{4}$, Ol. Menth. Pip. $\frac{1}{12}$ part.

- Pilula Scillæ Comp.** Dose, gr. v, t. d. Squill, $1\frac{1}{4}$,
Ginger, Ammoniacum, Hard Soap, of each 1,
Treacle q. s.
- Pimenta.** Dose, gr. i to gr. iii.
- **Oleum.** Dose, gtt. i to gtt. iii.
- Piper.** Chiefly used according to the palate.
- **Confectio.** Black Pepper forms one-tenth of
the Confectio. Dose, a teaspoonful two or three
times a day for weeks or months.
- Pix Burgundica.** Not used internally.
- **Liquida.** Not used internally except in the
form of Archangel Tar water, the dose of which is
fl. oz. i to fl. oz. iv in a cupful of milk.
- *—— **Liquida Aqua (Tar Water).** (Oz. iv of Arch-
angel Tar, well stirred up in a pint of water.) Dose,
fl. oz. i to fl. oz. iv in plenty of milk.
- Plumbi Acetas.** Dose, gr. ii to gr. vi; generally given
in the form of Pil. Plumbi c. Opio, above, which
see. For a lotion, gr. i or gr. iv in fl. oz. i.
- **Carbonas.** Only used as an ointment. Gr. lxiv
in oz. i.
- **Subacetatis Liquor.** Only used externally. For
a lotion m xxx to f ʒiii in a pint.
- Podophylli Resina.** Dose, as an alterative gr. $\frac{1}{6}$ to
gr. ss, as a purgative gr. $\frac{1}{4}$ to gr. i. See p. 111.
- Podophyllum.** Only used for obtaining the Resin.
- Potassa Caustica.** Not used internally.
- **Sulphurata.** Not used internally. For a bath,
oz. iv in a bathful of water. *Note.* The bath must
not be painted or made of metal.
- **Acetas.** Dose, gr. xv to ʒss, copiously diluted
with other diuretics.
- **Bicarbonas.** Dose, gr. x to gr. xv. When given
in Acute Rheumatism as part of the "saline treat-
ment," ʒss or ʒii frequently in the day. As an

effervescent, Potass. Bicarb. \mathfrak{z} i, Citric Acid, gr. xiv, or Lemon Juice a tablespoonful.

Potassæ Carbonas (Pearlash). Dose, for Children in Hooping Cough gr. v to gr. x, along with gr. v of Cochineal. As a constitutional liquefacient or solvent, gr. xv to \mathfrak{z} ss, much diluted.

— Chloras. Dose, gr. x to gr. xv, t. d. For a lotion, \mathfrak{z} i to \mathfrak{z} ii in fl. oz. viii.

— Citras. Dose, \mathfrak{z} i to \mathfrak{z} ii, t. d., or n. et m.

— Nitras. Dose, gr. x to \mathfrak{z} i for an adult in Rheumatic Fever, gr. i for an infant.

— Permanganas. Not used in the solid form.

— Permanganatis Liquor. Gr. iv in fl. oz. i. Dose, \mathfrak{m} iii to \mathfrak{m} v well diluted. For a lotion, 1 part to 30 or 60 of water. It should always be given in simple water, not in syrup or beef-tea, or any organic matter. See p. 113.

— Sulphas. Dose, gr. x to oz. ss.

— Tartras. Dose, \mathfrak{z} i to oz. ss.

— Tartras Acida. Dose, gr. xv to \mathfrak{z} i, frequently repeated. To be given with other diuretics. See p. 118.

Potassii Bromidum. Dose, gr. iii to \mathfrak{z} ss. See p. 119.

— Iodidum. Dose, gr. iv to gr. x. Sometimes even larger doses are given, but their superior efficacy is doubtful.

Prunum. Dose, *ad libitum*.

Pterocarpus. Only used for the sake of its colour.

*Pulvis Aluminis Comp. Not officinal. Alum and Zinci Sulph. of each oz. ss, to make a wine-bottleful of solution for an injection in Leucorrhœa. Very useful.

— Amygdalæ Comp. (Almonds 8, Sugar 4, Gum Arabic 1 part.) Dose, \mathfrak{z} i; which makes fl. oz. i of Mistura Amygdalæ.

- Pulvis Antimonialis.** (Antim. Oxid. 1, Præcip. Phosph. Lime 2 parts.) Dose, gr. x to gr. xv. Usual dose, gr. x.
- **Aromaticus.** (Cinnam. 4, Nutmeg 3, Saffron 3, Cloves $1\frac{1}{2}$, Cardam. 1, Sugar 25 parts.) Dose, gr. x to ʒss.
- **Catechu Comp.** (Catechu 4, Kino 2, Rhatany 2, Cinnam. 1, Nutmeg 1 part.) Dose, gr. x to ʒss.
- **Cretæ Aromaticus.** (Creta 1, Pulv. Aromat. 3 parts.) Dose, gr. x to ʒii.
- **Cretæ Aromaticus cum Opio.** (P. Cret. Arom. 39, Opium 1 part.) Dose, gr. x to ʒii. This last dose contains gr. i of Opium.
- **Doveri.** See P. Ipec. c. Opio.
- **Ipecacuanhæ cum Opio.** (Ipecac. 1, Opium 1, Pot. Sulph. 8 parts.) Gr. x contain gr. i of Opium and gr. i of Ipecacuanha. Dose, gr. v to ʒi. Even gr. x sometimes cause vomiting.
- **Jalapæ Comp.** (Jalap 5, Pot. Bitart. 9, Ginger 1 part.) Dose, gr. xv to ʒss, to be repeated p. r. u.
- **Kino cum Opio.** (Kino xv, Cinnam. 4, Opium 1 part.) ʒi contains gr. i of Opium. Dose, gr. x to ʒi.
- **Rhei Comp.** (Rhubarb 2, Light Magnes. 6, Ginger 1 part,—Gregory's Powder.) The nauseous taste of this medicine is exceedingly reduced by adding about fʒss or fʒi of Spt. Ammon. Aromat. before mixing it in water. If in addition to this the Syrup of Orange Flower Water is used, the offensive taste is almost lost.
- **Scammonii Comp.** (Scammon. 4, Jalap 3, Ginger 1 part.) Dose, gr. x, which contain gr. v of Scammony.
- **Tragacanthæ Comp.** (Trag. 1, Gum Arabic 1, Starch 1, Sugar 3 parts.) Dose, gr. x in fl. oz. i of water.

Pyroxylin (Gun Cotton). Only used for making Colloidum. See p. 122.

Quassia. Chiefly used in the form of infusion or tincture; but the so-called "bitter cup" which some fanciful dyspeptic patients think much of, is merely a drinking-cup made of this wood.

*—— Enema of. (Oz. ss of Quassia in fl. oz. iv.) See formulæ, "Injection for Thread Worms," and Enema Quassiæ, pp. 191, 222.

—— Infusion. Dose, fl. oz. ss to fl. oz. i. See p. 231.

*—— Tincture Comp. Not now officinal. Dose, ℥xxx to fʒii.

Quereus. Only used in the form of Decoction.

—— Decoction. (Oz. i in fl. oz. xx.) Used as an injection in Leucorrhœa. See Galla, p. 227.

Quiniæ Sulphas. Dose, gr. i to gr. ii as a general tonic; gr. v, t. d., on the accession of Typhus Fever; gr. v to gr. x in Ague.

*Quinidinæ Sulphas. Dose, 2 or 3 times as much as that of Quinine. See p. 80.

Resina. Not used internally.

Rheum. Dose, gr. ii to gr. xv.

—— Extract. Dose, gr. ii to gr. v.

—— Infusum. Dose, fl. oz. ss to fl. oz. i.

—— Pilula Comp. Dose, gr. v to gr. x.

—— Pulv. Comp. Dose, ʒss. See p. 247.

—— Tinctura. Dose, fʒi to fl. oz. i.

Rhœas (Red Poppy). Only used for its colour in Syrup. Rhœados.

—— Syrupus. Dose, ʒss; colours, fl. oz. i.

Ricini Oleum. Dose, ʒss or ʒi for an infant, and fl. oz. ss or fl. oz. i for an adult.

Rosa Canina. Dose, ʒiii in an ounce of confection.

—— Centifolia. Dose, ʒii in a 10 oz. infusion.

—— Gallica. Dose, ʒii in a 10 oz. infusion.

Rosmarini Oleum. Dose, gtt. i to gtt. iii.

Rosmarini Spiritus (\mathfrak{m} i of the Rosemary Oil in \mathfrak{m} x of the Spirit). Dose, \mathfrak{m} x to \mathfrak{m} xxx. Not much used internally.

Rutæ Oleum. Dose, gtt. i to gtt. v.

Sabadilla. Not used internally. Only employed for obtaining Veratria.

Sabina. Not used internally.

— Oleum. Dose, \mathfrak{m} ii to \mathfrak{m} v.

— Tinctura. Dose, \mathfrak{m} xxx.

— Unguentum.

Sambucus. Only used for making the preparations.

— Aqua. Dose, fl. oz. i.

Santonica. Employed for yielding Santoninum.

Santoninum. Dose, gr. ss three or four times a day, or gr. ii every other night. Should be given in the form of powders with sugar or an alterative dose of Calomel, say gr. i. See p. 123.

Sarza. Only used to furnish the preparations.

— Decoctum. Dose, fl. oz. i to fl. oz. iv.

— Decoctum Comp. Dose, fl. oz. i to fl. oz. iii.

— Extractum Liquid. (Fl. oz. i contains 2 oz. of root.) Dose, \mathfrak{m} xxx to f \mathfrak{z} i.

Sassafras. Only used in the Decoct. Sarz. Comp. (Gr. v in fl. oz. i.)

Scammoniae Radix. Only used for yielding the Resin.

— Mistura. Dose, fl. oz. ii, which contains gr. iv of the Resin of Scammony.

— Resina. Dose, gr. iv to gr. viii. Is slightly stronger than Virgin Scammony.

Scammonium. Dose, gr. iv to gr. x. It varies exceedingly in purity and consequent strength.

Scilla. Dose, gr. ii to gr. iv, frequently repeated.

* — Acetum. Now now officinal. Dose, \mathfrak{m} xxx.

* — Oxymel. Not now officinal. Dose, \mathfrak{m} xxx to f \mathfrak{z} i.

— Syrupus. Half strength of the old Oxymel of Squill. Dose, f \mathfrak{z} i to f \mathfrak{z} ii.

Scillæ Tinctura. Dose, \mathfrak{mxxx} to $\mathfrak{f}\mathfrak{z}\mathfrak{i}$.

Scoparius. Only used for making the preparations.

— Decoctum. Dose, $\mathfrak{fl. oz. i}$ to $\mathfrak{fl. oz. iv}$, frequently.

— Succus. Dose, $\mathfrak{f}\mathfrak{mxxx}$ to $\mathfrak{f}\mathfrak{z}\mathfrak{i}$. See p. 126.

Senega. Only used for making the preparations.

— Infusion. Dose, $\mathfrak{fl. oz. i}$.

— Tincture. Dose, \mathfrak{mxxx} to $\mathfrak{f}\mathfrak{z}\mathfrak{i}$.

Senna Alexandrina. Only used for making preparations.

— Indica. Only used for making preparations.

— Confection. One or two teaspoonfuls, repeated p. r. n.

— Infusion. Dose, $\mathfrak{fl. oz. i}$ to $\mathfrak{fl. oz. iv}$.

— Syrupus. Dose, $\mathfrak{f}\mathfrak{z}\mathfrak{i}$ to $\mathfrak{f}\mathfrak{z}\mathfrak{ii}$. A teaspoonful contains about $\mathfrak{z}\mathfrak{ss}$ of senna.

— Tincture. Dose, $\mathfrak{f}\mathfrak{z}\mathfrak{i}$ to $\mathfrak{fl. oz. ss}$.

Serpentary. Only used for making the preparations.

— Infusion. Dose, $\mathfrak{fl. oz. i}$.

— Tincture. Dose, \mathfrak{mxxx} to $\mathfrak{f}\mathfrak{z}\mathfrak{i}$.

Sinapis. Chiefly used medicinally for making the mustard poultice. It should not be mixed with Vinegar under the idea of making it more stimulating, as the contrary effect is produced. Mustard, as it is prepared for the table makes as good a mustard poultice as can be desired, by simply spreading it upon a piece of linen. Mustard is sometimes used as a stimulating emetic; a dessertspoonful should be stirred up in a teacupful of lukewarm water, and the patient made to drink that quantity, or more, until vomiting is produced.

Soda Caustica. Not used internally.

— Arsenias. Not used in the solid form.

— Arseniatis Liquor. $\mathfrak{Gr. iv}$ in $\mathfrak{fl. oz. i}$. Dose, \mathfrak{miii} to \mathfrak{mv} , carefully increased.

Sodæ Bicarbonas. Dose, gr. x to ʒss or ʒii in Acute Rheumatism. For an effervescent, Sodæ Bic. ʒi. Tartaric Acid gr. liii or Lemon Juice two table-spoonfuls.

— Carbonas. Very seldom used in medicine. Dose, gr. v to gr. x.

— Carbonas Exsiccata. Dose, gr. iii to gr. vi.

— Chloratæ Liquor. Dose, ℥xv to ℥xx in fl. oz. i.

As a lotion or gargle ℥xxx in fl. oz. i may be used.

— et Potassæ Tartras. Dose, ʒi to oz. ss.

— Phosphas. Dose, ʒi to oz. ss.

Note.—Solutions. The “Solutions” of the British Pharmacopœia are not intended for medicinal employment, and they are accordingly placed in the appendix, and not in the body of that work; they are merely designed to furnish solutions of a standard strength for analysis. Only two will therefore be noticed in this table of doses, viz. :—

Solution of Carbonate of Ammonia, which is only one-fourth the strength of Liq. Ammon. Sesquicarb., Ph. L., and

— of Corrosive Sublimate, which contains forty (40) times as much Corrosive Sublimate as the Liquor Hydrargyri Bichloridi, Ph. L. As “Solution” is the English for “Liquor,” it will be very easy for a mistake to occur in the hands of an inexperienced person, unless care is taken to specify what pharmacopœial preparation is intended.

Spiritus Ætheris. Dose, ℥xv to ℥xxx.

— Ætheris Nitrosi. Dose, ℥xxx to fʒi.

— Ammoniæ Aromaticus. Ammon. Carb. Liq. Ammon. Fort., Oil of Nutmeg, Oil of Lemons, Spirit and water. Dose, ℥xxx to fʒi.

*— Ammoniæ Fœtidus. Ammon. Carb. Assafœt. Spirit and water. Dose, ℥xxx. For an enema fʒii to fl. oz. ss in half a pint or a pint of gruel.

- Spiritus Armoracæ Comp. (Horseradish oz. i, Bitter Orange Peel oz. i, Nutmeg ʒss, Proof Spirit fl. oz. viii, Water fl. oz. ii.) Dose, \mathfrak{mxxx} to $\mathfrak{f}\bar{5}\mathfrak{i}$.
- Spiritus Cajuputi. Dose, $\mathfrak{m}\mathfrak{x}$ to \mathfrak{mxxx} or $\mathfrak{f}\bar{5}\mathfrak{i}$. 10 minims contain $\mathfrak{m}\mathfrak{i}$ of oil.
- Camphoræ. (Camphor 1 oz., Rect. Spirit fl. oz. ix.) Seldom used internally. $\mathfrak{m}\mathfrak{x}$ contain gr. i of Camphor, which separates on the addition of water.
- Chloroformi. (Chloroform 1, Spirit 19 parts.) Dose, $\mathfrak{m}\mathfrak{xv}$ to \mathfrak{mxxx} . A larger dose is often disagreeable.
- Juniperi. (Oil of Juniper 1, Spirit 9 parts.) Dose, $\mathfrak{m}\mathfrak{x}$ to \mathfrak{xxx} . $\mathfrak{m}\mathfrak{x}$ contain $\mathfrak{m}\mathfrak{i}$ of oil.
- Lavandula. (Oil of Lavender 1, Spirit 9 parts.) Not used internally.
- Menthæ Piperitæ. (Oil of Peppermint 1, Spirit 9 parts.) Dose, $\mathfrak{m}\mathfrak{x}$ to \mathfrak{mxxx} . $\mathfrak{m}\mathfrak{x}$ contain $\mathfrak{m}\mathfrak{i}$ of Oil.
- Myristicæ. (Vol. Oil of Nutmeg 1, Spirit 9 parts.) Dose, $\mathfrak{m}\mathfrak{x}$ to \mathfrak{mxxx} . $\mathfrak{m}\mathfrak{x}$ contain $\mathfrak{m}\mathfrak{i}$ of Oil.
- Pyroxylicus Rectificatus. Doses, $\mathfrak{m}\mathfrak{xv}$ to \mathfrak{mxxx} . This latter dose is almost as much as the palate will bear.
- Rectificatus. Not used internally.
- Rosmarini. (Oil of Rosemary 1, Spirit 9 parts.) Little used internally. Dose, $\mathfrak{m}\mathfrak{x}$ to \mathfrak{mxxx} . $\mathfrak{m}\mathfrak{x}$ contain $\mathfrak{m}\mathfrak{i}$ of Oil. See formulæ, "Hair Wash."
- Tenuior. (Rect. Spirit 5, Water 3 parts.) Not used internally.
- Stramonii Folia. Used for smoking. Two or three common pipefuls may be used at a time.
- Semina. Only used for making preparations.
- Seminum Extractum. Dose, gr. $\frac{1}{8}$ to gr. $\frac{1}{4}$. See Table of Narcotics.

Stramonii Seminum Tinctura. Dose, \mathfrak{mxxx} . See Table of Narcotics.

Strychnia. Dose, gr. $\frac{1}{32}$ to gr. $\frac{1}{8}$. Percira speaks of having seen grain doses and upwards given, but it is an extremely hazardous practice.

— Liquor. Gr. iv in fl. oz. i. Dose, \mathfrak{miv} (gr. $\frac{1}{30}$) to \mathfrak{mxxvi} (gr. $\frac{1}{8}$).

Styrax Præparatus. Dose, gr. v to gr. x.

Succus Conii. Dose, \mathfrak{mxxx} to f \mathfrak{z} i.— \mathfrak{mxxx} to \mathfrak{mxi} equal about gr. iii of extract. See p. 126.

— Scoparii. Dose, \mathfrak{mxx} to f \mathfrak{z} i. See p. 126.

— Taraxaci. Dose, \mathfrak{mxxx} to f \mathfrak{z} i or more. See p. 127.

Sulphur Præcipitatum. Dose, \mathfrak{zss} (a small bone egg-spoonful) to \mathfrak{z} ii. *Incompatibles*: A silver spoon for measuring or mixing it, as it is blackened by the sulphur.

— Sublimatum. Dose, a small teaspoonful to a dessertspoonful. See “Incompatibles” above.

Sulphuris Confectio. Dose, a dessertspoonful to a tablespoonful.

— Unguentum. Sulphur 1, Lard 4 parts.

*— Unguentum Co. See Ung. Sulph. Co. p. 264.

*Sumbul, Tincture of. Dose, \mathfrak{mxxx} to f \mathfrak{z} i.

Suppositoria Acidi Tannici. One to be used every night, or twice the same day. Each contains gr. ii of Tannin.

— Morphise. Each contains gr. $\frac{1}{4}$ of Muriate of Morphia.

Syrupus Aurantii. (Tr. Aurant. 1, Syrup 7 parts.) Dose, f \mathfrak{z} i to fl. oz. ss.

— Aurantii Floris. Dose, f \mathfrak{z} i to fl. oz. ss. Very agreeable.

— Ferri Iodidi. Dose, gtt. xii (contain about gr. i of Iodide of Iron) to f \mathfrak{zss} or more.

- Syrupus Ferri Phosphatis. Dose, $f\text{ } \overline{3}i$ to $f\text{ } \overline{3}ii$. One teaspoonful contains gr. i of Phosphate of Iron.
- Hemidesmi. Dose, *ad libitum*. Only used for flavouring.
- *— Hydrocotyle. Dose, $f\text{ } \overline{3}i$ to fl. oz. ss. See p. 95.
- *— of Hypophosphite of Lime. (Procter's.) Dose, $\overline{3}i$ to fl. oz. ss.
- *— of Hypophosphites. (Parrish's.) Dose, $\overline{3}i$ to fl. oz. ss.
- Limonis. Dose, $f\text{ } \overline{3}ss$ to $f\text{ } \overline{3}i$.
- Mori. Dose, $f\text{ } \overline{3}ss$ to $f\text{ } \overline{3}i$.
- Papaveris. Dose, $f\text{ } \overline{3}i$ in a fl. oz. i mixture. For an infant, a teaspoonful to a dessertspoonful of this mixture.
- Rhæados. Only used for its colour. Dose, $m\text{ } xxx$.
- Rosæ Gallicæ. Dose, $f\text{ } \overline{3}ss$ to $f\text{ } \overline{3}i$.
- Scillæ. Dose, $f\text{ } \overline{3}i$ to $f\text{ } \overline{3}ii$. Is half the strength of Oxyssel Seillæ.
- Sennæ. $f\text{ } \overline{3}ii$ equals $\overline{3}ss$ of Senna. Dose, $f\text{ } \overline{3}i$ to fl. oz. ss.
- Tolutanus. Dose, $m\text{ } xxx$ to $f\text{ } \overline{3}i$.
- Zingiberis. Dose, $m\text{ } xxx$ to $f\text{ } \overline{3}i$.
- Tabacum. Smoked *ad libitum*.
- Enema. $\overline{3}i$ in fl. oz. viii.
- Tamarindus. Dose, *ad libitum*.
- Taraxacum. A handful of the herb, root, leaves, and flowers, to be boiled in a quart of water to a pint for domestic use. Dose, a teacupful every morning fasting.
- Deeoetum. Dose, fl. oz. i to fl. oz. iv.
- Taraxaci Extractum. Dose, $\overline{3}ss$ to $\overline{3}i$.
- Sueeus. Dose, $m\text{ } xxx$ to $f\text{ } \overline{3}i$ or more. See p. 127.
- Terebinthina Canadensis. Not used internally.

Terebinthinæ Oleum. Dose, \mathfrak{mxxx} to fl. oz. i. See Oleum Tereb., p. 242.

Thus Americanum. Only used for making a plaster.

Tinctura Aconiti. (Aconite Root oz. iiss in Oi of Rectified Spirit.) Dose, \mathfrak{mv} to \mathfrak{mx} , to be increased carefully if at all, and six hours to intervene between the doses. See Table of Narcotics.

*—— Actææ Racemosæ. (Oz. iv of Actæa Root in Oi of Pr. Spt.) Dose, $\mathfrak{f\zeta i}$ to fl. oz. ss. See p. 41.

—— Aloes. (Aloes oz. ss in Oi of Pr. Spt.) Dose, $\mathfrak{f\zeta i}$ to $\mathfrak{f\zeta ii}$ (i.e. gr. iss to gr. iii), in combination with other purgatives; fl. oz. ss to fl. oz. i, if taken alone. 1 ounce contains gr. xii of Aloes, and these large doses are of doubtful additional efficacy.

—— Arnicæ. (Arnica Root oz. i in Oi of Spt. Rect.) Dose, \mathfrak{mxxx} . See p. 46. For a lotion fl. oz. ss or fl. oz. i in fl. oz. viii.

—— Assafoetidæ. (Assaf. oz. iiss in Oi of Spt. Rect.) Dose, \mathfrak{mxxx} . For an injection $\mathfrak{f\zeta ii}$ to fl. oz. ss.

—— Aurantii. (Orange Peel oz. ii in Oi of Pr. Spt.) Dose, \mathfrak{mxxx} to $\mathfrak{f\zeta ii}$.

—— Belladonnæ. (Belladonna leaves oz. i in Oi of Pr. Spt.) Dose, \mathfrak{mxx} to \mathfrak{mxxx} .

—— Benzoini Comp. (Benz. oz. ii, Storax oz. iss, Bals. Tolu oz. ss, Aloes gr. clx, Rect. Spt. Oi.) Seldom used internally. Dose, \mathfrak{mxxx} .

—— Bucco. (Buchu oz. iiss in Oi Pr. Spt.) Dose, \mathfrak{mxxx} to ζi .

—— Calumbæ. (Calumba oz. iiss in Oi of Pr. Spt.) Dose, $\mathfrak{f\zeta ss}$ to $\mathfrak{f\zeta ii}$.

—— Camphoræ cum Opio. (Opium \mathfrak{vii} , Benz. Acid \mathfrak{vii} , Camph. ζss , Oil of Anise \mathfrak{mxxx} , in Oi of Pr. Spt.) Dose, $\mathfrak{f\zeta i}$ to $\mathfrak{f\zeta ii}$. Half an ounce contains about gr. i of Opium.

—— Cannabis Indicæ. (Extr. Cannab. Ind. oz. i in Oi

- of Sp. Rect.) Dose, $\mathfrak{m}\text{v}$ to $\mathfrak{m}\text{xv}$ or more, on Sugar.
See p. 190.
- Tinctura Cantharidis. (Canthar. oz. $\frac{1}{4}$ in Oi of Pr. Spt.)
Dose, $\mathfrak{m}\text{xxx}$. See Canth. Tinct., p. 213.
- Capsici. (Capsic. oz. $\frac{3}{4}$ in Oi of Spt. Rect.)
 $\mathfrak{m}\text{xxx}$ in fl. oz. i is nearly as much as the mouth can
bear.
- Cardamomi Comp. (Cardam. $\mathfrak{z}\text{ii}$, Carraway
 $\mathfrak{z}\text{ii}$, Raisius oz. ii, Cinnam. oz. ss, Cochineal $\mathfrak{z}\text{i}$ in
Oi of Pr. Spt.) Dose, $\mathfrak{f}\mathfrak{z}\text{ss}$ to $\mathfrak{f}\mathfrak{z}\text{i}$.
- Cascarillæ. Cascarilla oz. iiss in Oi of Pr. Spt.)
Dose, $\mathfrak{m}\text{xxx}$ to $\mathfrak{z}\text{i}$.
- Castorei. (Castor oz. i in Oi of Spt. Rect.)
Dose, $\mathfrak{f}\mathfrak{z}\text{i}$ to $\mathfrak{f}\mathfrak{z}\text{ii}$.
- Catechu. (Catechu oz. $2\frac{1}{4}$, Cinnam. oz. i in Oi
of Pr. Spt.) Dose, $\mathfrak{m}\text{xxx}$ to $\mathfrak{f}\mathfrak{z}\text{i}$.
- Chiratræ. (Chiretta oz. iiss in Oi of Pr. Spt.)
Dose, $\mathfrak{m}\text{xxx}$ to $\mathfrak{f}\mathfrak{z}\text{i}$.
- Cinchonæ Comp. (Pale Bark oz. ii, Orange
Peel oz. ii, Serpentry oz. ss, Saffron $\mathfrak{z}\text{i}$, Cochineal
 $\mathfrak{z}\text{ss}$ in Oi of Pr. Spt.) Dose, $\mathfrak{f}\mathfrak{z}\text{i}$ to fl. oz. ss.
- Cinchonæ Flavæ. (Yellow Bark oz. iv in Oi of
Pr. Spt.) Dose, $\mathfrak{f}\mathfrak{z}\text{i}$ to fl. oz. ss.
- Cinnamomi. (Cinnam. oz. iiss in Oi of Pr. Sp.)
Dose, $\mathfrak{m}\text{xxx}$ to $\mathfrak{f}\mathfrak{z}\text{ii}$.
- Cocci. (Cochineal oz. iiss in Oi of Pr. Spt.)
Only used for its colour. $\mathfrak{f}\mathfrak{z}\text{i}$ colours fl. oz. viii
sufficiently for most purposes.
- Colehici Seminis. (Coleh. Seed oz. iiss in Oi of
Pr. Spt.) Dose, $\mathfrak{m}\text{xxx}$. Beyond this it must be
watched with care.
- Conii Fructus. (Conium Fruit (Seeds) oz. iiss
in Oi of Pr. Spt.) Dose, $\mathfrak{m}\text{xxx}$ to $\mathfrak{f}\mathfrak{z}\text{i}$. See page 85.
- Croci. (Saffron oz. i in Oi of Pr. Spt.) Only
used for its colour; $\mathfrak{f}\mathfrak{z}\text{i}$ gives a faint colour to fl. oz.
viii.

Tinctura Digitalis. (*Digitalis* oz. iiss in Oi of Pr. Spt.)

Dose, \mathfrak{mxxx} to $\mathfrak{f}\mathfrak{z}\mathfrak{i}$. Half-ounce doses have been given lately in *Delirium Tremens*, and, though the results have not been uniformly encouraging, they have been sufficiently favourable to warrant a continuance of the practice.

— *Ergotæ.* (*Ergot* oz. v in Oi of Pr. Spt.) Dose, \mathfrak{mxxx} to $\mathfrak{f}\mathfrak{z}\mathfrak{i}$.

— *Ferri Acetatis.* Dose, \mathfrak{mxxv} .

— *Ferri Perchloridi.* (*Liq. Ferri Perchlor.* fl. oz. v, Spt. Rect. fl. oz. xv.) Dose, \mathfrak{mxxv} to \mathfrak{mxxx} . Bitter infusions and preparations containing Tannin, are often said to be incompatible with the preparations of Iron. They deepen the colour, but do not generally produce any precipitate, and they may all be given along with it. This tincture is only one-fourth the strength of *Tr. Ferri Sesquichlor.*, Ph. D., but is similar in strength and dose to the old *Tr. Ferri Mur.*, L. and E.

— *Gallæ.* (*Galls* oz. iiss in Oi of Pr. Spt.) Dose, $\mathfrak{f}\mathfrak{z}\mathfrak{ss}$ to $\mathfrak{f}\mathfrak{z}\mathfrak{ii}$. Not often used internally.

— *Gentianæ Comp.* (*Gentian* oz. iss, Bitter Orange Peel oz. $\frac{3}{4}$, *Cardam.* oz. $\frac{1}{4}$ in Oi of Pr. Spt.) Dose, $\mathfrak{f}\mathfrak{z}\mathfrak{i}$ to fl. oz. ss.

— *Guaiaci Ammoniata.* (*Guaiacum Resin* oz. iv in Oi of Spt. Ammon. Aromat.) Dose, \mathfrak{mxxx} to $\mathfrak{f}\mathfrak{z}\mathfrak{i}$.

— *Hyoscyami.* (*Hyoscyam.* oz. iiss in Oi of Pr. Spt.) Dose, \mathfrak{mxxx} to $\mathfrak{f}\mathfrak{z}\mathfrak{i}$.

— *Iodi.* (*Iodine* oz. ss, *Pot. Iodid.* oz. ii in Oi of Spt. Rect.) Dose, for a child two or three years old, gtt. ii, increasing 1 drop for every year of the child's age, up to seven or eight years. For an adult a ten-drop dose is often quite sufficient, though it is sometimes given on a much larger

scale, even to \mathfrak{mxxx} . The offensive taste is almost concealed by milk, so that young children will take it in this liquid without difficulty.

Tinctura Jalapæ. (Jalap oz. iiss in Oi of Pr. Spt.)

Dose, $f\bar{5}i$ to fl. oz. ss.

— Kino. (Kino oz. ii in Oi of Spt. Rect.) Dose, \mathfrak{mxxx} to $f\bar{5}i$.

— Krameriæ. (Rhatany oz. iiss in Oi of Pr. Spt.) Dose, \mathfrak{mxxx} to $f\bar{5}i$.

*— Lariéis. (Larch Bark oz. ii in Oi of Pr. Spt.) Dose, \mathfrak{mxxx} to $f\bar{5}ii$. See p. 99.

— Lavandulæ Comp. (Oil of Lavend. $f\bar{5}iiss$, Oil of Rosemary $\mathfrak{m}x$, Cinnam. gr. cl, Nutmeg gr. cl, Red Sandal Wood gr. eec, in Oii of Spt. Rect.) Dose, \mathfrak{mxxx} to $f\bar{5}ii$. It is often taken as a fragrant substitute for brandy-and-water before going to a party.

— Limonis. (Fresh Lemon Peel oz. iiss in Oi of Pr. Spt.) Dose, \mathfrak{mxxx} to $f\bar{5}ii$.

— Lobeliæ. (Lobelia oz. iiss in Oi of Pr. Spt.) Dose, for an infant gtt. iv to gtt. v, for an adult $\mathfrak{m}xv$ to \mathfrak{mxxx} . It is so depressing that is seldom safe to exceed this dose; and it is often desirable to combine it with ethereal stimulants.

— Lobeliæ Æthereæ. (Lobelia oz. iiss in Oi of Spt. Ætheris.) Dose, same as that of Tinct. Lobeliæ, above.

— Lupuli. (Hops oz. iiss in Oi of Pr. Spt.) Dose, $f\bar{5}i$ to fl. oz. ss or fl. oz. i.

— Myrrhæ. (Myrrh oz. iiss in Oi of Spt. Rect.) Dose, $\mathfrak{m}xv$ to \mathfrak{xxx} as a stimulant ingredient in a cough mixture, or as an astringent gargle. It should never be mixed with Gum Water, but should be suspended by Syrup or Almond Mixture.

— Nucis Vomiciæ. (Nux Vomica oz. ii in Oi of

- Spt. Rect.) Dose, \mathfrak{mxxv} to \mathfrak{mxxx} . \mathfrak{mxi} contain gr. i of powdered Nux Vomica Seed.
- Tinctura Opii. (Opium oz. iss in Oi of Pr. Spt.) Dose, \mathfrak{mv} to $\mathfrak{f\zeta i}$, according to the object in view. \mathfrak{mxxv} contain nearly gr. i of Opium.
- Quassiæ Comp. (Quass. \mathfrak{zvi} , Cardam. oz. ss, Cochineal oz. ss, Cinnam \mathfrak{zvi} , Raisins oz. vii in Oil of Pr. Spt.) Dose, \mathfrak{mxxx} to $\mathfrak{f\zeta ii}$.
- Quiniæ Comp. (Quin. Sulph. gr. i in $\mathfrak{z i}$ of Tr. Aurantii.) Dose accordingly.
- Rhei. (Rhei oz. ii, Cardam. oz. $\frac{1}{4}$, Coriander oz. $\frac{1}{4}$, Saffron oz. $\frac{1}{4}$, in Oi Pr. Spt.) Dose, $\mathfrak{f\zeta i}$ if combined with other purgatives, or fl. oz. ss to fl. oz. i, if taken alone, which is the most common plan.
- Sabinæ. (Savin Tops oz. iiss in Oi Pr. Spt.) Dose, \mathfrak{mxxx} .
- Scillæ. (Squill oz. iiss in Oi Pr. Spt.) Dose, \mathfrak{mxxx} to $\mathfrak{f\zeta i}$.
- Senegæ. (Senega oz. iiss in Oi of Pr. Spt.) Dose, \mathfrak{mxxx} to $\mathfrak{f\zeta i}$.
- Sennæ. (Senna oz. iiss, Raisins oz. ii, Caraway oz. ss, Coriander oz. ss, in Oi Pr. Spt.) Dose, $\mathfrak{f\zeta i}$ to fl. oz. ss.
- Serpentariæ. (Serpentary oz. iiss in Oi of Pr. Spt.) Dose, \mathfrak{mxxx} to $\mathfrak{f\zeta i}$.
- Stramonii. (Stram. Seeds oz. iiss in Oi of Pr. Spt.) Dose, \mathfrak{mxxx} .
- Sumbul. (Sumbul Root oz. i in Spt. Rect. fl. oz. xxiv, Water fl. oz. ix.) Macerate fourteen days. Dose, \mathfrak{mxxx} to \mathfrak{ml} twice a day. See p. 127.
- Tolutana. (Bals. Tolu oz. iiss in Oi of Spt. Rect.) Dose, \mathfrak{mxxx} .
- Valerianæ. (Valerian oz. iiss in Oi of Pr. Spt.) Dose, \mathfrak{mxxx} . May be very advantageously combined with Tinctura Ferri Muriatis.

Tinctura Valerianæ Ammoniata. (Valerian oz. iiss in Oi of Spt. Ammon. Arom.) Dose, ʒxxx. It cannot be combined with Tinct. Ferri Mur., but it may be given along with Quinine, or vegetable tonics.

* — Veratri Viridis. Norwood's form, which is considered the best by Dr. Wood, is *Dried Root* of Veratrum Viride oz. viii, Rectified Spirit Oi: macerate for two weeks. Dose, gtt. vi or gtt. viii every three hours, to be increased by 1 drop at a time every dose, until sickness or some sensible effect is produced. See p. 130, on the difference between drop and minim doses. Osgood's form: *Fresh Root* oz. vi, Pr. Spt. Oi: macerate two weeks. This is not considered so good a strength as Norwood's, by the highest American authorities.

— Zingiberis. (Ginger oz. iiss in Oi Spt. Rect.) Dose, ʒxxx to f ʒi.

* Tormentilla. Dose, powdered, gr. x to ʒss. May be taken in milk as an article of diet.

* — Decoctum. Dose, for an infant, f ʒii to fl. oz. ss; for an adult, fl. oz. i to fl. oz. ii. See Decoct. Tormentillæ, p. 220.

Tragacantha. Very seldom used alone. The usual dose of Pulv. Tragac. Co. is gr. x, which contains nearly gr. ii of Tragacanth.

* Triticeum Repens, Decoction of. (Oz. i of Root in Oi.) Dose, fl. oz. viii to fl. oz. xx in the day. See p. 127.

— Infusion of. (Oz. i of Root in Oi.) Dose, fl. oz. viii to fl. oz. xx in the day. See p. 127.

Trochisci Acidi Tannici. Dose, 1 or more lozenges, each of which contains gr. ss of Tannin.

— Bismuthi. Each lozenge contains gr. ii of Bismuthi Nitr.

— Catechu. Each lozenge contains about gr. 1½ of Catechu.

Trochisci Morphiae. Each lozenge contains gr. $\frac{1}{36}$ of Muriate of Morphia.

— **Morphiae et Ipecacuanhae.** Each lozenge contains gr. $\frac{1}{36}$ of Muriate of Morphia, and gr. $\frac{1}{12}$ of Ipecacuanha.

— **Opii.** Each lozenge contains about gr. $\frac{1}{10}$ of Extr. Opii.

Ulmus. Only used for making the Decoction (not officinal, oz. iiss in Oi), the dose of which is fl. oz. i to fl. oz. ii.

Unguentum Aconitiae. (Gr. i in \mathfrak{z} i.) Half a drachm of the Ointment may be applied externally at a time.

— **Antimonii Tartarati.** (\mathfrak{z} ii of Tartar Emetic in oz. i.) To be continued until pustules are produced. If \mathfrak{m} xxx of Croton Oil are added to oz. i of this ointment, the pustules are more numerous, and are sooner produced, but they are less deep and painful.

— **Atropiae.** (Gr. i in \mathfrak{z} i.) Half a drachm may be used at a time. See p. 46.

— **Belladonnae.** (Gr. ix of Extr. Belladon. in \mathfrak{z} i.) 2 drachms or more may be used, according to the extent of the surface to be covered; the quantity is, in fact, almost *ad lib.*

— **Calomelanos.** (Gr. ix in \mathfrak{z} i.) The quantity to be used must depend upon the object in view. It is intended as a substitute for Blue Ointment, and will be used in corresponding quantities.

— **Cantharidis.** (Canthar. oz. i, Yellow Wax oz. i, Olive Oil fl. oz. vi.) To be applied as a dressing to keep a blister from healing.

— **Cetacci.** *Ad lib.*

— **Cocculi.** (Cocculus Seeds gr. lxxx, Lard oz. i.) Only used for killing lice. Sufficient must be used to anoint the head.

- Unguentum Creasoti. (Creasote f ʒi, Simple Ointment, oz. i.)
- Elemi. (Elemi oz. $\frac{1}{4}$, Simple Ointment oz. i.)
- Gallæ. (Galls gr. lxxx., Simple Ointment, oz. i.)
- Gallæ cum Opio. (Gall Ointment oz. i, Opium gr. xxxii.) Gr. iv of Opium to ʒi. Chiefly used as an application for Piles. They should be thickly covered with the Ointment, and then returned beyond the sphincter by means of the finger; also thickly covered with the Ointment.
- Hydrargyri. ʒi to ʒss, repeated two or three times a day, until a mercurial action is induced.
- * — Hydrargyri Mitius. (Blue Ointment 1 part, Lard 2 parts.) This is the strength that should be employed when Mercurial Ointment is used in Erysipelas. See p. 84. It should be spread over the whole surface, and covered with Oiled Silk or Gutta Percha; but if it does not speedily produce the desired benefit, it should be discontinued. It is seldom that more than three dressings are desirable.
- Hydrargyri Ammoniati. (White Precipitate Ointment.) Gr. viii to ʒi.
- * — Hydrargyri Ammoniacum Sevo. This is not officinal, but I have found it of great value in irritable eczematous or impetiginous sores. It consists of half-and-half White Precipitate Ointment, and Mutton Suet melted together. This makes an Ointment so hard, that it has to be held before the fire before it is soft enough to be applied; but when it is once applied, it is not melted by the heat of the skin, and it forms a very sheathing and soothing covering to the moist, oozing, tender surface, protecting it effectually from the air, and healing it at the same time.

Unguentum Hydrargyri Iodidi Rubri. (Gr. ii to ʒi .)

Half a drachm to a drachm may be used at a time.

— Hydrarg. Nitratis (Citrine Ointment). This is generally too strong to be used alone. If employed for Chronic Inflammation of the Eyelids, it should merely be rubbed by the tip of the finger into the roots of the lashes.

* — Hydrarg. Nitratis Mitius. Omitted from the Ph. Br. (1 part of Ung. Hydr. Nit. to 7 parts of Lard.) In mixing them an iron spatula should be carefully avoided, as it decomposes the Nitrate of Mercury, and makes the Ointment black. They ought to be mixed by trituration in a stoneware mortar.

— Hydrarg. Oxidi Rubri. (Gr. viii of Red Oxide of Mercury to ʒi .) This Ointment becomes black by keeping, especially if it has been touched with an iron spatula. It is often irritating when used for the eyes in its full strength, in which case it should be diluted with an equal weight of fresh unsalted butter by trituration in a stoneware mortar. It then makes an Ointment of a very useful consistence for the purpose.

— Iodi Comp. Contains gr. ii of Iodine, and gr. ii of Iodide of Potassium in ʒi .

— Plumbi Carbonatis. (Gr. viii in ʒi .)

— Plumbi Iodidi. (Gr. viii to ʒi of Lard.) Not now officinal.

— Plumbi Subacetatis. mxx of Liq. Plumbi and gr. $\frac{1}{4}$ of Camphor in ʒi of Lard. When it is desired to make an extempore Ointment containing Liquor Plumbi, it is very difficult to mix the liquid with Lard by rubbing them together with an iron spatula; but if a stoneware mortar is heated by boiling water and dried, and the Lard is put in be-

- fore it has cooled, they can be mixed in a moment by trituration with the pestle.
- Unguentum Potassii Iodidi. (Gr. viii to ʒi of Lard.)
- Resinæ.
- Sabinæ. (Savin 1, White Wax 3, Lard 16 parts.)
- Simplex. (White Wax 2, Lard 3, Almond Oil 3 parts.)
- Sulphuris. (Sulph. 1, Lard 4 parts.)
- * — Sulphuris Comp. Now omitted. (Contains Sulphur oz. iv, Veratrum ʒx, Saltpetre ʒii, and Soft Soap oz. iv, Lard oz. xii.)
- Terebinthinæ. (Ol. Tereb. fl. oz. i, Resin ʒi, Yellow Wax oz. ss, Lard oz. ss.) See p. 35.
- Veratriæ. (Gr. i in ʒi.) 1 drachm may be used at once. See Formulæ, "Ointment for the Face in Tic-Douloureux," p. 181.
- Zinei Oxidi. (Gr. x to ʒi of Simple Ointment.)
- Uva-Ursi. Only used to make the Infusion.
- Infusion. Dose, fl. oz. i to fl. oz. ii.
- Valerian, Infusion of. Dose, fl. oz. ss to fl. oz. i.
- Tinctura. Dose, mxxx. See Tinct. Valerianæ, p. 259.
- Tincture, Ammoniated. Dose, mxxx. See Tr. Valer. Ammon., p. 260.
- Valerianate of Soda. Not used medicinally.
- Veratria. Not used internally.
- Unguentum. (Gr. i in ʒi.)
- * Veratrum Viride, Extract. Dose, gr. ii or gr. iii every three hours, to be increased if necessary. See next article; not a good form.
- * — Tincture (Norwood's). Dose, gtt. vi or gtt. viii every three hours. To be increased by 1 drop every dose till nausea or some other sensible effect is produced. See p. 129.
- Vinum Aloes. (Gr. xvi of Aloes in fl. oz. i.) Dose, f ʒi to fl. oz. ss = gr. ii to gr. viii of Aloes.

Vinum Antimoniale. (Gr. ii in fl. oz. i.) Dose, as a febrifuge \mathfrak{mxxx} to $\mathfrak{f}\mathfrak{z}\mathfrak{i}$ = gr. $\frac{1}{8}$ to gr. $\frac{1}{4}$. If intended as an emetic, $\mathfrak{f}\mathfrak{z}\mathfrak{i}$ every fifteen minutes till it acts.

— Colchici. (Colch. Corm, dried, oz. iv in Oi of Sherry.) Dose, \mathfrak{mxxx} to $\mathfrak{f}\mathfrak{z}\mathfrak{i}$.

— Ferri. (Gr. viii of Tartrate of Iron in fl. oz. i.) Dose, $\mathfrak{f}\mathfrak{z}\mathfrak{i}$ = gr. i for an infant, to fl. oz. i or gr. viii for an adult.

— Ipecacuanhæ. (Ipec. oz. i in Oi Sherry.) Dose, \mathfrak{mxxx} to $\mathfrak{f}\mathfrak{z}\mathfrak{i}$; as an emetic $\mathfrak{f}\mathfrak{z}\mathfrak{i}$ every fifteen minutes till it acts.

— Opii. (Opium oz. iss in Oi of Sherry.) \mathfrak{mxxv} contain gr. i of Opium. Dose same as that of Laudanum.

Zinci Acetas. Not used internally. Gr. i to gr. viii in fl. oz. i as a Collyrium or Lotion.

— Carbonas. Only used externally as an absorbent powder, or for making an Ointment, gr. x in $\mathfrak{z}\mathfrak{i}$.

— Chloridum (Butter of Zinc). Only used as a caustic. Very deliquescent, and should therefore be made into a paste with 3 or 4 parts of flour.

— Oxidum. Only used externally as an absorbent powder, or to make an Ointment, gr. x in $\mathfrak{z}\mathfrak{i}$.

— Sulphas. Dose, as an emetic gr. xv to $\mathfrak{z}\mathfrak{ss}$. As a tonic gr. i at first; to be increased day by day to gr. x or $\mathfrak{z}\mathfrak{i}$.

— Valerianas. Dose, gr. i to gr. iii in the form of pill.

Zingiber. Dose, a few grains according to the palate.

— Tinctura. Dose, \mathfrak{mxxx} to $\mathfrak{f}\mathfrak{z}\mathfrak{i}$.

Volumetric Analysis.

Various plans are used for estimating the strength of chemical agents, and the decision in favour of one rather than another is chiefly dependent, in general, on which is the most convenient. In testing the strength of some liquids, *e. g.* spirits, the hydrometer is the simplest and most easy method; whilst for other liquids, such as Dilute Hydrocyanic Acid, or solution of Soda, and for solids such as Citric Acid or Nitrate of Silver, a different and more complicated method must be adopted. In the last London Pharmacopœia the strength of Dilute Hydrocyanic Acid was determined by means of Nitrate of Silver; 12.59 grains of which were to be accurately saturated by 100 grains of the dilute acid. In the British Pharmacopœia however the Volumetric method is used; but as the theory of this process is, in many cases, very complicated, the simplest form of its employment will be taken in the present section, and explained so as to give the clue, for arriving at a knowledge of the more complex cases.

Example.—"Citric Acid. An Acid obtained from Lemon Juice, $3\text{HO}, \text{C}_{12}\text{H}_5\text{O}_{11} + \text{HO}$. In right rhombic prisms. 67 grains of the crystals dissolved in water are neutralized by 100 measures of the volumetric solution of Soda."

On turning to the Appendix, B III, p. 428, ed. 8vo, we find :—

“VOLUMETRIC SOLUTION OF SODA.

“ (Soda $\text{NaO} = 31$.)

“ Take of Solution of Soda a sufficiency.

Distilled Water a sufficiency.

“ Fill the volumetric tube to 0 with the Solution of Soda and drop this into 63 grains of purified Oxalic Acid dissolved in two fluid ounces of the water, until the acid is exactly neutralized, as indicated by litmus. Note the number of measures (N) of the Solution used, and having then taken 40 fluid ounces of the solution of Soda, augment this quantity by the addi-

tion of Distilled Water, until it becomes $\frac{4000}{N}$ fluid ounces. If, for example, $N = 93$, the 40 ounces of solution of Soda should be diluted so as to become $\frac{4000}{93} = 43.01$ fluid ounces.

“ The quantity of this solution which fills the volumetric tube to 0, includes 31 grains of Soda, and will therefore neutralize an equivalent in grains of any monobasic acid.”

Explanation.—Several matters require consideration in order to understand this process, viz.,

The eq., or combining proportion of Soda.

The strength of the “solution of Soda.”

The construction of the Volumetric Tube.

The equivalent of purified Oxalic Acid.

The reason for taking 63 grains of this acid.

The reason for taking 2 fluid ounces of water.

The reason for taking 40 fluid ounces of the solution of Soda.

The origin and meaning of $\frac{4000}{N}$; and lastly,

Why the 40 ounces are to be increased to 43.01 ounces.

We must bear in mind that convenience is a principal consideration in this method of analysis; and the reason for many of the above directions is simply, that they are convenient. It is more convenient to measure a liquid than to weigh it, and therefore a tube is taken which is measured into 100 divisions, the highest of which is marked 0. It is intended that this tube, which is called a Volumetric Tube, shall, when it is filled to the top, or 0, contain such a quantity of Soda in solution as shall exactly neutralize one equivalent of most common acids; so that when the tube full of the Soda liquid has been exactly neutralized by Sulphuric Acid, we shall know that we have 40 grains of this acid; if neutralized by Nitric Acid, that we have 54 grains of that acid; if by Acetic Acid, that we have 51 grains of it, and so on. Now the quantity that will perform this is 31 grains, or an equivalent of Soda, and the object is therefore to have exactly 31 grains of Soda in the tube, when it is full.

But the strength of the "Solution of Soda," of which we are told to take "a sufficient," is variable, and is known to be too strong. We are therefore desired to take "sufficient water" also, to make it the right strength. The next point, therefore, is to find out the strength of the solution, and for this purpose purified Oxalic Acid is used. Any acid of known strength might be employed, but the difficulty is to be certain about its strength; for Sulphuric Acid, being a liquid, may contain a little more or a little less water, and so may vary in its strength, and the same remark will apply to all the liquid acids. But Oxalic Acid is a solid body; and if the crystals are moderately transparent on the one hand, and are not damp on the other, they contain a fixed and known quantity of water of crystallization, and are, therefore,

not liable to vary in strength. But the equivalent of crystallized Oxalic Acid, $C_2O_3HO + 2HO, = 63$, that is to say, 63 grains of this crystallized acid, will combine with and exactly neutralize 31 grains, or the equivalent of Soda. We have therefore the means of finding the strength of the solution of Soda by doing as we are directed, viz. taking 63 grains of Oxalic Acid, and dissolving it in any convenient quantity of water. (2 ounces are mentioned in the Pharm.) We are then to fill the tube with the solution of Soda, about the strength of which we are doubtful, and pour out from it into the Oxalic Acid solution until it is neutralized. The tube, when full, holds 100 measures, and we will suppose that when 93 measures have been used the acid is neutralized. We have learnt thereby that 93 measures of this solution of Soda contain 31 grains of Soda; and as our object is that the tube, when full, should contain this quantity, we might in a future case pour 93 measures of the Soda solution into the tube, and fill it up by adding 7 measures of water. If 70 or 80 measures had been sufficient to neutralize the 63 grains of Oxalic Acid, we should have learnt that that quantity had contained 31 grains of Soda instead of the 93 measures we first supposed, and we must have put that amount into the tube in future, and added an additional quantity of water to fill it up. Now this quantity, whether 93, 80, 70, or any other number, is called *N* in the Pharmacopœia.

But it is troublesome to make corrections of strength every time, and to go through the above process frequently; and it will be far more convenient to make a good quantity of the proper strength at once, and have done with it. The Pharmacopœia therefore directs us to take a good-sized bottle, which can be easily

held in the hand, and is not too heavy to be readily lifted, and fill it. Now a quart bottle is a convenient size enough, and so it tells us to take a quart, *i. e.* 40 fluid ounces of the solution of Soda, and make it the proper strength by adding the proper quantity of water to it. But how is this to be found out? Why, by a simple Rule of Three sum. We have found that 93 measures in our experiment had to be filled up to 100 measures, and therefore we may state it thus:—

If 93 measures used, are to be filled up to 100, how much must 40 ounces or measures be filled up to?

As 93 : 100 :: 40 : to the Answer.

40

93)4000(43·01

But this might be put $\frac{4000}{93} = 43·01$, and we

therefore see the origin of the $\frac{4000}{93}$ or $\frac{4000}{N}$ whatever that N may mean, which is mentioned in the *Pharmaeopœia*; and we learn that the 40 fluid ounces must have a little more than 3 fluid ounces of water added to make up a good-size stoek bottle of the proper strength.

We may now see how this explanation bears upon the case of the Citric Acid with which we commenced. 67 grains of the crystals of that acid, dissolved in water, are said to be neutralized by 100 measures of the Volumetric Solution of Soda above described; that is to say, by 31 grains or 1 eq. of Soda; from which we should infer that 67 would be the equivalent of Citric Acid. On computing it however from its composition, we find that its eq. is 201 instead of 67, or three times the quantity to be neutralized by the

eq. of Soda. Citric Acid however is a "Tribasic Acid," or one of those which require 3 eqs. of a base for combination; and therefore the 201 grains of the acid will require, not 1, but 3 eqs. of Soda. We are, however, using only 1 eq. instead of 3 eqs. in the 100 measures of the volumetric solution, and therefore we must take a third of the eq. of Citric Acid instead of the whole, viz. 67 grains instead of 201. Now Citric Acid, when powdered, is liable to be fraudulently adulterated with Tartaric Acid or with Cream of Tartar, the equivalent of both substances being larger than that of Citric Acid. If, therefore, it was so adulterated, the 100 measures of the solution of Soda would neutralize more than 67 grains of the powdered Acid, and the presence of an adulteration would thereby be proved.

"VOLUMETRIC SOLUTION OF NITRATE OF SILVER.

"(Nitrate of Silver, AgONO_5 . Eq. 170.)

"Take of Nitrate of Silver 148.75 grains, and dissolve it in 1 pint (*i. e.* 8750 grains) of distilled water.

"The object of this solution is to make the volumetric tube or 1000 grains, contain $\frac{1}{10}$ of an eq., or 17 grains, of Nitrate of Silver; the equivalent and expense of this salt being so great that a whole eq. would be too much for convenience.

Water.	AgONO_5 .	Vol. tubeful.	$\frac{1}{10}$ eq. AgONO_5 .
--------	--------------------	---------------	--

As 8750 gr. : 148.75 gr. :: 1000 gr. : 17 gr.

"Upon dropping the solution into dilute Hydrocyanic Acid rendered alkaline by Soda, the precipitate first formed is upon agitation redissolved, and continues to be so, until the whole of the Cyanogen of the Acid has united with the Sodium and the Silver, forming the double Cyanide of Sodium and Silver. In

such experiments, 100 volumetric measures of the solution correspond to 5.4 grains of absolute Hydrocyanic Acid."

"Dilute Hydrocyanic Acid should contain 2 per cent. of H Cy, eq. 27. Its specific gravity is 0.997. Half a fluid ounce of the dilute Acid, when treated with an excess of Soda, requires the addition of 80.66 measures of the above volumetric solution before a permanent precipitate begins to form."

Explanation.—This method of testing dilute Hydrocyanic Acid was proposed by Liebig. Cyanide of Silver, Ag Cy, is insoluble in water, but the double Cyanide of Sodium and Silver (Na Cy + Ag Cy) is soluble; and if the Acid has been neutralized by an excess of Soda, one-half the Cyanogen combines with the Sodium, and the other half with the Silver when it is added, and no permanent precipitate is formed until the whole of the Cyanogen has thus become combined with Sodium and Silver. After this has happened, any further addition of Nitrate of Silver will be decomposed permanently by the excess of Soda. One equivalent of Nitrate of Silver, or 170, represents, therefore, 2 equivalents of Hydrocyanic Acid, or 54; but only $\frac{1}{10}$ eq. of AgONO₅, or 17 grains, is used, and this will indicate $\frac{1}{10}$ of 2 eqs. of H Cy, or 5.4 grains.

Half a fluid ounce of the dilute Acid, or 218.1 grains, are to be used. It is not quite so heavy as water; and therefore, as

Sp. gr. of W.	Sp. gr. of H Cy dil.	Oz. ss of Water.	Oz. ss of H Cy dil.
1.000	0.997	: : 218.75 grs.	: 218.09 grs.

But the dilute Acid ought to contain 2 per cent. of H Cy. Therefore, these 218.1 grains should contain 4.36 grains of the strong Acid. For

$$\text{As } 100 : 2 :: 218.1 : 4.36.$$

The volumetric tubeful or 100 measures indicate, however, 5.4 grains.

Grs. Vol. ms. Grs. Measures.

Therefore, as 5.4 : 100 :: 4.36 : 80.7.

This decimal does not correspond exactly with that given in the Pharmacopœia, and attention is drawn to the difference, although so trifling, in order that a student may be aware that it arises from some trifling difference of calculation, which, however, I am not able to explain, as I cannot obtain precisely the Pharmacopœial decimal figures from the data given.

The 80.66 measures of the Pharmacopœia (or 80.7) show therefore that the Acid contains the proper amount of HCy, *i. e.* 2 per cent.

Many manufacturers of the dilute Acid add some dilute Sulphuric Acid to make it keep better, and the presence of a small quantity of this Acid will not interfere with the above test, for Sulphate of Silver is soluble in a large proportion of water. If Hydrochloric Acid has been added, the above test then becomes inapplicable. The necessity for adding Sulphuric Acid is explained by Dr. Attfield (Pharm. Journ. p. 562, for 1864). Compounds of Nitrogen readily undergo change, and pure HCy in water (that is, $H + C_2N + HO$) is liable to form Ammonia, or NH_4O . "A bubble or two of this gas in one or two days changes many thousand times its weight of HCy." Hence it is very important to have some free powerful Acid like SO_3 , to neutralize the Ammonia at the moment of its formation.

VOLUMETRIC SOLUTION OF BICHROMATE OF POTASH.
($KO, 2CrO_3$, eq. = 147.5.)

"Dissolve 129 grains of the Bichromate in a pint *i. e.* 8750 grains) of Distilled Water.

"The Volumetric Tube, when full (*i. e.* 1000 grains

of the Solution), contains 14·7 grains of the Bichromate, or $\frac{1}{10}$ of an eq., for

Water.	Pot. Bi- chrom.	Tube full.	Pot. Bi- chrom.
As 8750	: 129	: 1000	: 14·7.

“The Bichromate of Potash readily parts with some of its oxygen to oxidizable bodies such as Protoxide of Iron; and this solution is intended as a test for the amount of this oxide in the Magnetic Oxide of Iron. The Magnetic Oxide of Iron is a mixture of Protoxide (FeO) and Peroxide (Fe₂O₃) of Iron; of which the Protoxide is the most powerful, medicinally, and ought to be present in the proportion of about 9 per cent.

Ferrideyanide of Potassium, or Red Cyanide, is employed to show when the conversion of the protoxide into peroxide is complete; for this substance produces Prussian Blue when added to *Protoxide* of Iron, but not to *Peroxide*; so long, therefore, as a blue colour is produced it shows that there is some protoxide remaining.

“The directions for testing are as follows:—Dissolve 20 grains of Magnetic Oxide of Iron in Hydrochloric Acid, and add, gradually, 8·3 measures of the Volumetric Solution of Bichromate of Potash, occasionally testing with the Ferrideyanide of Potassium.” If the blue colour should cease to appear before the 8·3 measures are used, it will prove that there has been too little protoxide in the magnetic oxide; if it does not cease to appear when the whole of the 8·3 measures have been added, it will prove that there has been too much protoxide.

The theory of the process is as follows:—1 eq. of the Bichromate, or 147·5 grs., loses 3 eqs., or 24 grs. of Oxygen, which combine with 6 eqs., or 216 grs., of

Protoxide of Iron (6FeO) and convert them into 6 eqs. of Peroxide ($6\text{FeO}_{1\frac{1}{2}}$). Now, if the Maguetie Oxide contain the proper proportion of Protoxide, the 20 grs. ordered to be tested will contain 1·8 grs. of FeO , for

M. Oxide. FeO . M. Oxide. FeO .

As 100 grs. : 9 grs. : : 20 grs. : 1·8 grs.

1·8 grs. of FeO will only require 0·2 gr. of Oxygen, and this quantity is yielded by the 8·3 measures of the Volumetric Solution, for as 1 eq., or 147·5 grs. of Bichromate yields 3 eqs., or 24 grs. of Oxygen, 14·7 grs. or the tube full of the solution, will yield 2·4 grs. of Oxygen, and 8·3 measures will yield 0·199 or 0·2 grs. of Oxygen, for

Measures. O. Measures. O.

As 100 : 2·4 grs. : : 8·3 : 0·2 grs.

We therefore see that 8·3 measures yield sufficient Oxygen to convert into Peroxide 9 per cent. of Protoxide which ought to be present in the 20 grains employed.

“VOLUMETRIC SOLUTION OF HYPOSULPHITE OF SODA.
(Hyposulphite of Soda crystallized,
 $\text{NaO}, \text{S}_2\text{O}_2 + 5\text{HO} = 124.$)

“Take of Hyposulphite of Soda, in crystals, 260 grs.
“Distilled Water, a sufficiency.

“Dissolve the Hyposulphite of Soda in one pint of the water, and drop the solution cautiously from the volumetric tube into one hundred measures of the volumetric solution of Iodine (*i. e.* into 12·7 grains, or $\frac{1}{16}$ of an equivalent of Iodine) until the brown colour of the Iodine is just discharged (*i. e.* until 24·8 grains of Hyposulphite have been added). Note the number of measures (N) which have been used to produce this effect; and having then taken 16 fluid ounces of the same solution, augment this quantity

by the addition of Distilled Water until it amounts to $\frac{1600}{N}$ fluid ounces. If for example $N=96$, the 16 ounces of the solution of the Hyposulphite should be diluted with Distilled Water so as to become $\frac{1600}{96} = 16.66$ fluid ounces.

"This solution is used for estimating free Iodine, an object which it accomplishes by forming with the Iodine, Iodide of Sodium and Tetrathionate of Soda. One hundred measures of it include $\frac{1}{10}$ of two equivalents of the Hyposulphite (*i. e.* 24.8 grains), and therefore correspond to 12.7 grains of free Iodine.

Explanation.—Tetrathionic Acid (S_4O_5) and Iodide of Sodium (NaI) are both colourless, whilst free Iodine is deeply coloured. When 2 equivalents of Hyposulphite of Soda are added to 1 equivalent of free Iodine, the Iodine combines with 1 equivalent of Sodium, and forms colourless Iodide of Sodium, setting 1 equivalent of Oxygen free; this Oxygen combines with the 2 equivalents of Hyposulphurous Acid $2(S_2O_2)$ and forms Tetrathionic Acid, which combines with the second equivalent of Soda and forms Tetrathionate of Soda (NaO, S_4O_5). The equivalents of these substances are, however, so high (127 and 248) that $\frac{1}{10}$ of each only is used; and the object of the process is to obtain 24.8 grains of Hyposulphite in the volumetric tubeful, or 100 measures.

The explanation of the directions for making the solution is so similar to that for making the volumetric solution of Soda that it is unnecessary to repeat it. As, however, this solution is chiefly used for testing Iodine, whilst the solution of Soda is employed for testing the strength of many acids, a smaller

stock-bottle of the solution of the Hyposulphite will suffice for our work; and, therefore, the Pharmacopœia gives directions for making a sixteen-ounce bottleful, instead of the forty-ounce bottleful of solution of Soda.

In using the solution for testing Iodine, 12·7 grains of the sample should be dissolved in an ounce of water, with the aid of 15 grains of Iodide of Potassium. If it be pure it will require 100 measures of the volumetric solution to render it colourless; but if it contain moisture, which is the most probable adulteration, a smaller quantity will suffice. Suppose, for instance, 83 measures rendered 12·7 grains of Iodine colourless, how much adulteration is present?

Mea-	Grs. I.	Mea-	Grs. I.
ures.		ures.	

As 100 : 12·7 : : 83 : 10·541.

There is 17 per cent. of adulteration; for the 12·7 grains are 2·159 grains deficient of Iodine, or contain this much adulteration, and

Grains	Grains	Grains	Grains
Sample.	Adulteration.	Sample.	Adulteration.

As 12·7 : 2·159 : : 100 : 17.

It is unnecessary, however, to go through such a calculation as the above in real workings; for, as the tube is made to contain 100 measures, every measure will correspond with $\frac{1}{100}$ part of the sample tested. If, therefore, 17 measures are unused, as supposed above, it will show that seventeen-hundredths of the substance are deficient, *i. e.* 17 per cent.

“VOLUMETRIC SOLUTION OF IODINE.

(Iodine, I, eq. 127.)

“Take of Pure Iodine, in powder, 111·125 grains.

“Iodide of Potassium, 150 grains.

“Distilled Water, a sufficiency.

"Mix the Iodide of Potassium and Iodine in a bottle with 18 ounces of the water, agitate until both are dissolved, and when the solution is complete add as much Distilled Water as will make the total bulk exactly one pint.

"This solution may be used for determining the amount of Sulphuretted Hydrogen or of a Metallic Sulphuret in a fluid; but it is chiefly used for the estimation of Sulphurous and Arsenious Acids. It is dropped from the volumetric tube into the liquid to be tested until free Iodine begins to appear in the solution. 100 volumetric measures of it include 12·7 grains ($\frac{1}{10}$ of an equivalent of Iodine) and therefore correspond to 1·7 grains of Sulphuretted Hydrogen, 3·2 grains of Sulphurous, and 4·95 grains of Arsenious Acid.

Acidum Arseniosum.—4 grains dissolved in boiling-water, with 8 grains of Bicarbonate of Soda, discharge the colour of 80·8 measures of the Volumetric Solution of Iodine.

Acidum Sulphurosum.—One fluid drachm, mixed with a little mucilage of starch does not acquire a permanent blue colour with the Volumetric Solution of Iodine until 164 measures of the latter have been added to it.

Explanation.—The Iodide of Potassium is merely employed to render the Iodine soluble in the water. It undergoes no change when the solution is used for testing, and will not require further allusion.

The tubeful, or 1000 grains, is intended to contain $\frac{1}{10}$ of an equivalent of Iodine, or 12·7 grains; therefore

Vol. Tubeful.	Iodine.	A Pint.	Iodine.
As 1000 grs. :	12·7 grs. :	8750 grs. :	111·125 grs.

In testing for *Sulphuretted Hydrogen* (HS, eq. 17)

the Iodine of the Solution combines with the Hydrogen and forms colourless Hydriodic Acid, HI ; 127 grains of Iodine, therefore, become colourless with 17 grains of HS , *i. e.* 12·7 grains of I , or the Vol. tubeful, become colourless by 1·7 grains of HS .

If a Sulphuret, *e. g.* Sulphuret of Potassium, KS , is dissolved in water, HO , it becomes $\text{KO} + \text{HS}$, and the Solution of Iodine will indicate this HS as readily as if it was uncombined.

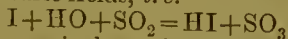
Arsenious Acid, AsO_3 , eq. 99.—When Arsenious Acid is neutralized by Soda, it forms $2\text{NaO} + \text{AsO}_3$. Two equivalents of Iodine combine with the Sodium, and form colourless Iodide of Sodium, whilst the two equivalents of Oxygen convert the Arsenious acid AsO_3 into Arsenic Acid, AsO_5 , which is also colourless, *i. e.* $2\text{I} + 2\text{NaO} + \text{AsO}_3 = 2\text{NaI} + \text{AsO}_5$. 254 grains of Iodine, or 2 equivalents become colourless, therefore, by 99 grains of Arsenious Acid, *i. e.* 12·7 grains of I , or the $\frac{1}{20}$ of this quantity indicates 4·95 grains or $\frac{1}{20}$ of an equivalent of Arsenious Acid. Four grains of Arsenious Acid is, however, the quantity ordered by the Pharmacopœia to be tested; and

AsO_3 . Measures. AsO_3 . Measures.

As 4·9 grs. : 100 : : 4 grs. : 80·8

The quantity mentioned in the Pharmacopœia.

Sulphurous Acid, SO_2 , eq. 32.—When this acid is dissolved in a considerable quantity of water it decolorizes Iodine, by forming colourless Hydriodic Acid and Sulphuric Acids, *i. e.*



127 grains, the equivalent of I , therefore, indicate 32 grains, the equivalent of SO_2 , or 12·7 grains, the volumetric tubeful of Solution of Iodine correspond with 3·2 grains of Sulphurous Acid.

The Pharmacopœia directs that the officinal solution

of Sulphurous Acid shall contain so much SO_2 that one fluid drachm of sp. gr. 1.04, or 56.875 grains, shall decolorize 164 measures of the Iodine Solution *i. e.* 20.828 grains of Iodine. But

Iodine.	SO_2 .	Iodine.	SO_2 .
As 12.7 grs. :	3.2 grs. :	20.828 grs. :	5.248 grs.

contained in one fluid drachm or 56.875 grains of the Solution of Sulphurous Acid. This indicates 9.2 per cent. of SO_2 , for

Solution.	SO_2 .	Solution.	SO_2 .
As 56.875 :	5.248 :	100 :	9.2

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THE END.

ERRATUM.

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 Rosmarini.



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